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AN ESSAY ON "THE DISEASES OF LOWER ANIMALS TRANSMISSIBLE TO MAN."*

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(*Continued from page* 14.)

NOCARD experimenting with guinea-pigs, injected 10—20 m. of the muscle juice of the hearts of tuberculous animals, in which the disease was well marked, and none of the guinea-pigs were affected.

With the juice of the muscles of the thigh derived from ten tubercular cows, he inoculated forty guinea-pigs, and only one showed signs of tubercle.

He concluded that if there was any danger in the flesh of tuberculous animals, it was the exception and not the rule.

Martin, on behalf of the Royal Commission, tested the flesh of twenty-one tubercular cows; in two cases only was evidence obtained of the presence of the bacillus by inoculation of guinea-pigs.

Woodhead made a series of experiments to test the effects of roasting and boiling of the tubercular virus in meat.

It was found that in boiling and roasting experiments, as ordinarily carried out in the kitchen, the temperature, however high it may be on the surface, seldom reaches 60°C in the centre, except in the cases of joints less than about six pounds in weight.

Boiling and roasting were found insufficient to destroy tubercular virus enveloped in rolls of meat.

There is ample evidence in the above to prove that food derived from tuberculous animals can produce the disease in healthy animals, and therefore, I think, we are perfectly justified in condemning all such carcases.

The disease manifests itself in various forms in man, and most frequently in the lungs, producing phthisis or consump-

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tion. The sputum contains the bacilli in large numbers, and is extremely virulent. Cavities in the lungs are often thickly lined with bacilli; they are present in great numbers in the caseous matter, though in bovine and equine tuberculosis, this is not the case.

Whether the disease in man is contagious is an open question, though numerous cases of supposed communication between husband and wife, brothers and sisters have been reported, and Ransome showed that tubercle bacilli were present in the breath in phthisis.

On the other hand, the experience in consumption hospitals does not support this view, there being no evidence of the communication of the disease to nurses and hospital attendants.

Before leaving this important subject, I wish to say a few words about tuberculine, which is a glycerine extract of the tubercle bacillus.

It was brought forward by Koch in 1891 as a curative agent, but instead of curing it hastened the disease.

It will in all probability be one of the most active means of stamping out tuberculosis because of the diagnostic symptoms it gives rise to.

It can be made from either a solid or liquid media, generally the latter, being prepared in almost the same way as mallein, but incubated at a temperature of 37°C for six weeks, *i.e.*, until it exhausts the media, instead of three weeks, as in the preparation of mallein.

The dose for large animals is 30-40 m.
„ „ „ the dog „ 5-20 „
„ „ „ the pig „ 20-25 „

It is found that if an animal be badly affected, it will probably not react if a full dose be used, because of the large quantity of tuberculine already in the system, but if subjected to a second inoculation with a smaller dose will readily give the reaction.

Fortunately in such cases the symptoms, such as coughing, wasting, enlarged glands, etc., are so apparent, that there is little, if any, difficulty experienced in recognising the disease.

When tuberculosis is discovered in a herd, they should be tested every six months, and all those which react should be isolated, or better still, slaughtered, and suitable compensation allowed.

By these means tuberculosis would no doubt in time become as rare a disease as contagious pleuro-pneumonia.

Method of Procedure for Inoculation.

The temperature of each animal to be subjected to the test should be taken, if possible, two or three times in the course of a few hours, and the average temperature taken for each.

All those with abnormal temperatures to be rejected.

After inoculation the temperature of each animal ought to be taken every two hours for 20 hours, or three or four times during the 24 hours, and the point of inoculation examined.

If the animal be free there will be no elevation of temperature; if diseased, there will be a distinct elevation of temperature varying with the dose, and the stage of the disease from 2°F.—5°F.

An elevation of 2°F. justify us in saying tuberculosis is present.

The next disease I propose to mention is actinomycosis, which along with glanders and tubercle, are sometimes spoken of as the infective granulamuta.

Actinomycosis

Is a disease which was long mistaken for tuberculosis, and for other forms of new growths, such as asteo sarcoma, etc. The organism of the disease was first demonstrated in 1845; it is known as the Ray fungus or actinomyces. It attacks man, horses, cattle, and pigs. It is most commonly seen in cattle, and in these animals is found in various parts of the body

In the digestive system we find the disease attacking the lips, gums, buccal mucous membrane, and palate, and appearing as nodules, wart-like growths or ulcers.

The upper and lower jaws, where it probably originates in carious teeth, and extending and invading the neighbouring cavities causes rarefaction of the bone, and the formation of granulation tissue.

In this situation it is commonly known as lumpy jaw.

The tongue, where we see it most commonly in the form of nodules under the mucous membrane with a special tendency to ulcerate, through the irritation of the teeth; these ulcers contain a cheesy material, which, when examined, is found to contain the ray fungi.

In this organ it also produces a condition of induration due to the great formation of fibrous tissue; the young fibrous tissue contracts, and, if one side only be affected, the tongue will be distorted; but if bilaterally affected, it will be found to be smaller and harder.

In the respiratory system we may meet with the disease in the nasal cavities, the larynx and trachea and the lungs, and in the latter position it might be easily mistaken for tuberculosis.

It very rarely affects the nervous system, and in all probability never attacks the reproductive system.

It attacks the skin and subcutaneous tissues, a favourite seat being the region of the parotid gland when it is known as wens or clyers.

In the pig the most common seat of the disease is the mammary glands. The fungus itself appears as a rosette-shaped mass, formed of a central body, from which club-shaped masses radiate, and thus it has been likened to the capitulum of a composite flower.

It gains access to the system by means of wounds and abrasions on the skin and mucous membranes; also by means of carious teeth, or, when young animals are casting their teeth, and the fungus gains the wounded mucous membrane in the alveoli.

The weight of evidence points to the disease originating, both in man and the lower animals, from the same source, and there is great suspicion attached to the cereals, *e.g.*, oats, barley, wheat, etc. The tongue being so commonly the seat of the disease, suspicion at once falls on the food.

It may be transmitted to the skin of one animal from the tongue of another, the former having a wound in the skin and the latter lesions in the tongue, and thus the disease may be communicated from animal to animal.

When once the parasite has got a footing, it tends to become generalised, but its power of metastasis is not so great in the lower animals as that of tubercle; in man, however, it tends to spread.

In man, the soft parts of the neck, the mediastinal tissue, and the lungs are specially affected.

To demonstrate the organism, pus or the scraping from an ulcer may be taken, spread out on a slide, and examined against a dark background, when the fungi will appear as little white, or yellowish-white, grains.

On pressing the cover-glass on the slide, the grains readily flatten out, being of a soft, tallowy consistence.

One of the best methods for staining is to take a cover-glass preparation and press very thin, dry over a flame, and float for ten minutes in Zeil Neelson's solution; rinse in water, and stain in a concentrated alcoholic solution of picric acid for from five to ten minutes. Immerse in water for five

minutes, and 50 per cent. alcohol for fifteen minutes; then pass through absolute alcohol, and clove oil, and preserve in canada balsam. The actinomyces will be stained a brilliant red, and the tissues yellow.

The next disease we have to consider is rabies, which, by reason of its deadly nature and its distressingly painful course, is the most terrible of all the diseases that man may contract from the lower animals.

Rabies

Is a disease which has its origin in the canine race, the disease being communicated by the bites of the rabid animals to man, cattle, sheep, deer, cats, rabbits, and swine, and even birds.

Although the specific virus has not been isolated, there can be little doubt but that it is developed in the saliva of the affected animal during the progress of the disease.

When the germ is implanted into a wound it spreads sooner or later along the nerve trunks to the brain, and then it gives rise to mental and other disturbances, the most remarkable of which is the tendency to bite and attack other animals; this is noticed even in sheep and deer, which are naturally inoffensive.

The only mode of transmission from animal to animal and to human beings is by direct inoculation, and that usually by the bite of a rabid dog.

The disease has been credited with having a spontaneous origin, but it is now generally believed to be due to the bite of a rabid animal, although there are a few who, no doubt, even now regard the disease as due to excessive heat and prolonged thirst, and that it is specially apt to occur during the hot summer months.

At the present time we have the most absolute proof that no dog ever becomes rabid except after the bite of a rabid dog or other animal.

The period of incubation is very indefinite; the shortest period in the dog being about seven days, and the longest 155 days.

In man it varies from three days to nine months, and even ten years in some instances.

The nearer the wounds are to the central nervous system, as when inflicted on or about the head, the shorter the period of latency.

If the early symptoms of rabies were better known it would greatly contribute to keeping down the number of cases of

hydrophobia, for then the animal could either be destroyed or other steps taken to prevent it from biting either human beings or other members of its own species.

Two forms of rabies are recognised in the dog, viz., the furious and the dumb.

In the furious form the first thing observable is a change in the natural habits and manner of the animal.

The dog appears dull and restless with an inclination to keep out of the light, and hides in some dark corner or under the table. He is, however, still obedient and recognises his master.

In a day or two these symptoms become aggravated, and the animal is easily excited and has a tendency to bite on the slightest provocation. The appetite may still remain, and deglutition is performed without much difficulty.

In the next stage, however, swallowing is performed with difficulty, or not at all, and the animal gets very excited, growling without apparent cause, and snapping at imaginary objects, or anything that happens to be in his way. The appetite becomes perverted, and the dog is inclined to swallow sticks, stones, and other filth.

The bark is altered in tone, being husky and more of the nature of a howl.

In this stage the animal has no dread of water, or yet in any other stage, providing light is not permitted to shine on it, which only seems to increase his rage. The dog is now highly dangerous to handle, and may bite even those whom he knows best if any endeavour be made to examine his mouth, a proceeding often resorted to in the belief that something is sticking in the animal's throat.

As a great rule during this stage the dog leaves home and roams about in an aimless manner, travelling an immense distance in a short time, attacking any living creatures that come in his way, but preferring to attack other creatures than man.

The animal may endeavour to return home, soon shows signs of exhaustion, paralysis sets in, and death closes the scene.

In dumb rabies the first symptoms are similar to those seen in the furious form, but early in the course of the disease the muscles of the lower jaw become paralysed, and the cavity of the mouth and its contents are exposed.

The dog is quieter than in the furious form, less easily provoked, and powerless to bite.

When a person or animal has been bitten by a rabid dog,

the best method is to completely excise the bitten surface, apply the actual cautery, or treat with tincture of iodine, or a strong solution of carbolic acid, and the virus may thus be destroyed before it has been carried deeply into the tissues. If the wounds are superficial, cauterise with nitric acid, or apply the actual cautery.

But in no case can this kind of treatment give complete assurance that the bitten person will not become infected, and yet until a few years ago nothing more could be done.

In the human being, the disease is termed Hydrophobia, one of the most conspicuous symptoms being the dread of water.

The wound from a bite may have healed, but after the incubative period has passed, it again becomes inflamed, and begins to itch; this is one of the earliest symptoms noticed in man.

Then the patient becomes feverish and very thirsty; the face is pallid, and assumes a peculiarly anxious expression, the muscles being drawn and restless.

Excitement is greatly increased, and the expression amounts to one of actual terror; the patient is continually casting side glances as if looking for some hidden danger.

The patient now becomes delirious, and thirst excessive; deglutition is performed with difficulty, especially the swallowing of fluids, and the sight of water fills him with terror.

Muscular tremors set in, followed by violent spasms of the muscles and convulsions. Respiration now becomes so difficult that the patient slowly suffocates.

Thanks to the magnificent researches of Pasteur, the symptoms I have just described are now very rarely seen, and even when bites have been numerous and deep, the person's life may still be saved.

Pasteur found that if he took the spinal cord of a rabid animal, and inoculated the virus under the dura mater of a dog, it would develop rabies as a rule within 18 days.

He afterwards found, however, that by taking the virus, not from rabbit to dog, but from rabbit to rabbit, that the virus is greatly increased in virulence, and if, after passing through a series of rabbits, a dog be inoculated, then the disease is induced in six to seven days.

This is known as the *virus fixé*.

He then studied the possibility of producing immunity.

The medulla of a rabbit containing the virulent virus was suspended in a glass bottle over caustic potash at a temperature of 25°C.

If a number of spinal cords were thus treated, and examined from day to day, it was found that they gradually lost their virulence, becoming completely inert in from 16 to 20 days.

The original method of treatment was to inoculate with the weakest cord the first day, and so on until the patient had received inoculations from the whole number.

It was subsequently found that so many injections need not have been given, as those used during the first five days were found to be inert when tested on rabbits, the marrows of the next five days showed an ascending scale of virulency, until those used on the last two days of treatment contain a virus so virulent as to be capable of causing rabies in dogs after 10 days' inoculation. The principle which underlies this method of treatment is to induce the patient to pass through a mild and harmless attack of hydrophobia before the deadly attack which would follow the dog's bite has time to develop.

We will now pass on to another disease which man may contract from the lower animals, viz. :—

Variola Vaccinicæ.—This disease affects cows in a mild form, and is of considerable importance, because from it vaccines are prepared which, when inoculated to man, produce a mild form of the disease, afterwards giving immunity to that most fatal malady, smallpox.

It is a contagious, febrile, and eruptive disease, known in most parts of the globe, resulting from the presence of a specific fixed virus which is reproduced and multiplied in the animal body during the course of the malady.

After a period of latency of from six to nine days, the contagium causes the development of an eruption on the surface of the mammary gland, which eruption passes through the stages of pimple, vesicle. pustule, and scale.

The disease may be transmitted from animal to animal by the hands of the milker ; or, again, the milker may be inoculated from the cow suffering from the disease, the lesions being produced on the hands, and by the hands to the face, etc., giving rise to an affection exactly like that brought on by actual vaccination.

Cows have been made to take the disease by enveloping them in blankets which have been taken from the bed of a person who has died of smallpox ; this experiment was conducted by Dr. Sonderland in 1830.

In 1801 Gassner inoculated eleven cows with smallpox lymph, and succeeded in producing in one phenomena indistinguishable from the results of ordinary vaccination with cowpox ; children were then inoculated from the cow.

It has not been determined whether the smallpox poison originated in man or the cow; whether the disease was communicated to man from the lower animals, or to them from man.

The origin will most probably remain a mystery.

In 1798 Jenner, who had practised smallpox inoculation, proposed the use of a benign non-infectious lymph, obtained from a disease of the cow or horse, as a substitute for variolous lymph, and in 1840 direct smallpox inoculation was prohibited by Act of Parliament.

The next disease I shall bring before your notice is foot-and-mouth disease.

Foot and Mouth Disease is a highly contagious and infectious febrile disease, characterised by a vesicular eruption affecting the lips, tongue, palate, and feet of cattle, sheep, and pigs.

In milk cows the eruption sometimes occurs on the udder and teats, and the milk being contaminated by the discharge from the vesicles, is unfit for food either the human beings or for lower animals. It has been stated that no injurious effects follow the consumption of such milk, but then this mistake may probably have arisen from the fact that milk is seldom drank direct from the cow, and more seldom still in an undiluted form.

It seems to act most vigorously when administered warm to young animals, and, in the same manner, may give rise to symptoms in children, known as thrush. In the human being it gives rise to the formation of vesicles on the tongue, usually on the side, and on the mucous membrane of the cheeks; the largest being about the size of a lentil seed. The vesicles dry up, and are replaced by a scab, which falls off about the tenth day after the first appearance of the vesicle.

They cause a difficulty in speaking and deglutition.

I will now pass on to say a few words about *Stomatitis pustulosa contagiosa* in the horse.

In the summer of 1876 several cases of a contagious disease appeared in and outside the clinic of the Berlin Veterinary College, presenting phenomena similar to those of variola, and chiefly affecting the mucous membrane and external integument.

Some cases outside the clinic had been declared by the inspecting veterinary surgeons to be suspicious of being affected by glanders.

It is characterised by the formation of small, firm nodules, varying in size from a millet to a lentil seed, on the cheeks,

tip of tongue, inferior surface of tongue, and upper lip, which in a day or two become converted into ulcers. In four or five days the ulcerations are numerous in the above-named positions. About the sixth or eighth day the ulcerations commence to heal.

In addition to the above phenomena there may be ulceration of the upper lip, cheeks, and anterior extremities.

The disease runs a rapid course, all the animals getting clear of it in from twelve to fourteen days.

It is transmitted both by inoculation and infection to other animals, and to man. A student inoculated himself. There was redness and unpleasant itching and swelling of the part, the formation of a pustule, over which a yellowish-brown crust formed, which fell off in fourteen days, leaving a deep cicatrix.

Other four gentlemen inoculated themselves without infection.

Other four men took the disease by natural contagion.

A groom was also infected, the disease running the same course as in the student's case; he became quite convalescent in twelve days.

In conclusion, I wish to insert, with the briefest possible allusion, the *parasitic diseases* transmitted from the lower animals to man, as I think an essay of this description would not be complete without mentioning them. First, then, the *Cestodes* claim our attention for a few minutes.

The *Tænia solium*, known as the solitary tapeworm, may attain a length of three yards, and lives in the alimentary canal of man. Occurs most frequently in Germany. It consists of a great number of segments or proglottides, which, when ripe, are passed to the exterior.

These segments are full of eggs, which, on being taken into the interior of another animal—usually the pig—either by means of the food or water supply, hatch and liberate a little six-hooked embryo or proscolex.

This bores through the alimentary canal, and is carried by the blood stream into the muscles—usually of the tongue, neck, and shoulders, where it developes into the cystic form—*Cysticercus cellulose*, giving rise to the so-called measly condition.

When these cysts gain the intestines of man, the heads within them are set free, then fix themselves by means of their hooks, and develop into the mature tapeworm.

The *Tænia saginata*, known as the unarmed tapeworm, measures from twelve to twenty feet, and is also a parasite of man.

This is probably the commonest form in England and India, and in Germany it is less frequently met with.

The intermediate host, in which the cystic form—*Cysticercus bovis*, occurs, is the ox.

The *Tænia echinococcus*, the smallest of the Cestodes, measures about ¼ in. in length, one half of the whole length being taken up by the terminal segment, which is the only one that comes to sexual maturity. It inhabits the intestines of the dog.

The cystic form, *Echinococcus veterinorum*, develops in a great many organs of the human being.

According to Cobbold, it is seen in Ireland to a great extent, where it is estimated one-seventh of the population are infected with this hydatid disease, which causes serious and even fatal illness.

It frequently occurs in Switzerland, Southern Germany, and Australia, but much more rarely in England and Scotland.

The Trematode worms so rarely occur in man that we might almost disregard them in an essay of this description.

We will now pass on to the *Nematodes*, of which the only important one here is the *Trichina spiralis*, which is met with in two positions in man—one, the mature form, in the intestine; the second, the sexually immature form, encysted in the intermuscular connective tissue.

When trichinous pork is taken into the alimentary canal, the encysted larval form is set free by the action of the acid gastric juice.

On the second or third day it becomes sexually matured. Both sexes are found.

The adult male is about 1-18th of an inch in length, and may be recognised by the two small processes in which the tail ends.

The adult female is considerably longer, sometimes twice the length of the male; its body is also thicker, and the posterior extremity is broad and bluntly rounded.

On the sixth or seventh day the female gives birth to numerous living sexually immature embryos, which make their way into the muscular tissue, cause disorganisation of the muscle fibres, and at the end of fourteen days they are completely encysted, then calcification of the cyst commences, and the cycle is complete.

The complete calcification of the cyst is not completed for about ten months, after which, at an undetermined period,

the contained larvæ may undergo fatty degeneration, and even calcification.

Arachnida.—Under this heading we have the *Acari* or *Sarcopies.*

The one which attacks the human being most frequently is the Sarcoptes scabiei, also known as the human itch insect. It is found in burrows or tunnels in the deeper layers of the skin. The female burrows in the skin, laying her eggs as she goes, and leaves a white track behind her. The irritation so produced sets up eczematous or vesicular eruptions.

Whether all the acari which infest many of the lower animals are always different from the human acarus, is not clear, but in all probability they are all communicable to man.

The Acarus or Demodex folliculorum, one of the mites met with in the sebaceous follicles of the skin of the head, shoulder and anterior extremities generally, of the dog is also said to have been transmitted to man, in whom it is known as the face mite.

Several are often found in one hair follicle, with the long axis of their body directed inwards. They are not known to produce any pathological changes in man, but are nourished by the abundant sebaceous secretion.

The *Pentastoma taeniodes* of the nasal fossæ of the dog is the matured form of Pentastoma denticulatum of the human liver, spleen, and kidneys.

In one case the mature parasite was found in the nostril of a man who had suffered for seven years with severe bleeding from the nose.

The Moulds.—Only two of these fungi interest us, viz., the *Achorion Schonlenii* and *Tricophyton Tonsurans.*

It is scarcely necessary for me to say that these fungi are the cause of ringworm in the lower animals; the appearances of which you are no doubt all well acquainted with.

It is occasionally contracted by human beings, in whom it is with great difficulty cured, especially when on the head.

I do not think I have done anything like justice to this most important subject, but I have endeavoured to make it as interesting as possible.

THE BUSINESS SIDE OF OUR CALLING.

BY DIOGENES.

WHEN one thinks of the practitioners he has known during a long life, he is able in a great measure to account for their respective success or failure by recalling the amount of business aptitude or the want of it displayed by them. There will surely be few, at least among the educated and thoughtful, who are so deceived as to suppose that their superior professional skill can account for commercial success. Every practitioner who reads this article will call to mind clever fellows who have met with but little pecuniary reward—men who in point of brain power and possibly manual dexterity, easily passed a crowd of mediocrities at college, took class honours, certificates of distinction, and perhaps medals. They shot like meteors across our horizon, and for the moment we were dazzled by their superior talents—their very genius, which was *not* "an infinite capacity for taking pains" in mere routine work, has often been their undoing, and men of average capacity have proved more successful in the long run.

The treatment of diseased animals is a business as well as a profession, and he who would butter his bread should be taught this fundamental truth early. *Esprit de corps* is doubtless a fine lubricant with which to oil the professional machine and avoid friction with other practitioners; it is also a mask, a convenient one, to hide the naked selfishness of individuals.

We hear, perhaps, too much talk of status and professional dignity, and see too little of real honesty of purpose. There are common grounds upon which we can fight shoulder to shoulder for the common weal, and our united strength may serve to impress a layman at the head of a veterinary department where separate and individual representation would be valueless, but for the most part each has his own battle to fight, and whether we choose to bind ourselves to the fact or not, our brother practitioners are also our rivals. The established veterinary surgeon is the lion in the path of the young one who wishes to commence business on his own account. We are crowded wherever the work is worth having, and the only men who feel no jealousy of each other are those practising over a wide country with poor fees.

If we would be really free from jealousy and business rivalry, it would be necessary to map out "spheres of influence" and give each man a "scientific frontier." As

things are, we cross each other's paths and have clients inside our brother's ring fence, while he travels miles to attend the animals of one of our neighbours, which we take to be no compliment to our own professional skill.

We do not get ourselves heated about clients on the border land, but there are always sufficient excuses for neighbouring practitioners' jealousy.

Business success depends not so much upon our ability to handle cases as clients. The man who can get out of mistakes gracefully, succeeds better than the over cautious one who rarely makes a blunder but has no tact in concealing it.

The lightning diagnosis is not so desirable an attainment as formerly, because a better educated horse-owner appreciates the careful aud painstaking efforts of a veterinary surgeon who would leave nothing to chance, but with grave and serious manner concentrates all his attention, for the time being, upon the illness he is called upon to treat.

Between the vulgar swaggerer who leaps to a conclusion and makes oracular utterances, and the infirm and hesitating manner of the veterinary agnostic, there is a wide gulf.

From a business point of view there is a certain needful assurance required, without which the client is not inspired with confidence in our capacity to treat his animal and save him a loss.

The candour which induces a man to say "I don't know," when asked what is the matter, may do well enough when called to advise a medical man, the owner of a Derby winner, or manager of a great stud, but such a confession to the average farmer or cab proprietor only invites impertinence, an assumption of equality, and even the recommendation of some quack remedy. One is not obliged to say he doesn't know, nor is he compelled to name a disease. The symptoms may be recapitulated and probabilities suggested, a hope expressed that at the next visit more favourable conditions will be displayed, a hope based more or less upon the prescriptions of the professional attendant and the advice tendered. The possibilities of an adverse turn may be discounted at this interview, and hints given on the curious phenomena of metastasis. If the man who says "I don't know" when he sees a patient blowing and having a high temperature, finds next day he has laminitis, when pulmonary trouble was just as much on the cards, he may also find a positivist in attendance, one who has had the advantage of coming on the scene later, when a correct diagnosis could be made.

It would be immoral to advocate the practice of jumbling the judgment and confusing the reason of the client, but the attendant must take care of his reputation and treat the client in such a manner that the latter is not in a position to contradict his professional adviser and tell him he was mistaken. In a case such as we have here imagined—and it is not an uncommon one—the *business* man will not suffer in reputation, but the profoundest student of disease may do so while thinking *only* of his patient.

Clients not only wish to know what ails their beast and whether it will die, but how long it will be before it can go to work, if treatment is advised. The too dignified scientific man who resents such very natural inquiries is apt to give offence; moreover, his inability to give a satisfactory answer creates doubt in the client's mind as to the capacity and experience of the attendant. If he has seen many such cases before, surely he can form an approximate judgment as to the duration of this one.

Most of us with a long retrospect, have at one time fallen into the error of being too sanguine, and at another too pessimistic as to a probable return on the patient's part to a life of usefulness.

It is helpful to our clients, as a rule, to give them a prognosis based on averages, but with certain reservations. It enables them to make arrangements for their work or pleasure, and, unless we are very far wrong in our estimate, they will not be disposed to blame us.

Most people will forgive us an error of judgment if we do not give our opinion in a bombastic manner. They can judge, as a rule, whether we have given an honest opinion and well meant advice, as the result of careful study of the case; they know that we are more likely to be right than a layman, and that is all we should claim. If we lay claim to infallibility, we have not to wait long for disillusionment.

Clients not only wish to know the probable sequel to an illness but the cost. It is *business* with them, and our professional dignity does not occupy a first place in their minds, or any place at all. We cannot in many cases give a satisfactory answer, but there are numerous instances in which we can afford a rough estimate, or even name a number of guineas.

Merchants and business men generally appreciate the practitioner who says, "the animal will probably recover in a month or six weeks, and the expense incurred will not be very great, *so much*, perhaps, but I can't tell you exactly."

The writer has had much experience of contracts, both in town and country, and if space permitted could cite many of the advantages and disadvantages of such an arrangement. A few may be referred to:—Where no contract exists, the client will not wait until an animal is nearly dead and the case hopeless, hence a greater average success attends the practitioner. On the other hand, he who contracts will send about the most trivial matters, and sometimes prove very exacting in his demands. One is not afraid to make frequent visits in a critical case, because one's presence is not regarded as incurring unnecessary expense.

The client may think daily attendance on a lame case desirable, when the practitioner regards a hebdomadal visit as sufficient. When no need arises for the veterinary surgeon's services, the latter has the satisfaction of knowing that his horses are earning their forage while resting, but a spell of good luck is apt to put some clients off their fancy for contracts, forgetting how much service they have had on previous occasions.

The contract system, while extremely businesslike, is liable to engender mutual dissatisfaction, it causes owners of animals to hold the professional man too cheap, and the latter to become careless in the details of account keeping and dispensing.

It is not necessary to book every visit and bottle of medicine supplied, nor to wrap the latter in white paper and seal it. Certain convenient ready-made preparations are too apt to do duty, a contracting *materia medica* and loose methods follow, unless professional enthusiasm sustains the practitioner's high standard. No doubt we show equal alacrity in attending a night parturition case if required, but we are not enthused on the journey by that hope of reward which is said to sweeten labour.

The contract saves us from the *damnosa hereditas* of charging for medicines supplied. How much we wish that our strictly professional services could be fairly assessed without the necessity of dispensing medicines? It is an aspiration we cannot hope to realise except through the contract system.

The successful business man cultivates this side of our calling, and as far as possible creates a demand for his medicines. Orders come in, and he "fills" them with pleasure and profit. His dignity seldom troubles him at such times. It is quite inconsistent with our pretensions, but we all do it. Why should we let the easy and profitable trade side of our calling fall into the hands of quacks who advertise, while we do not?

SCARLET FEVER IN SWINE.

THE susceptibility of any of the lower—especially the domestic—animals to specific diseases proper to man, whether the communication be effected by ordinary contagion or by artificial inoculations, is fraught with scientific and practical interest, bearing as it does on the origin of local outbreaks and the spread of disease by milk, etc., and also as affording the only practicable means of fully investigating their etiology and prophylaxis by experiments *in corpore vili*. It has thus been fully proved that cows are susceptible to scarlet fever, though in a modified form, dependent on histological and other differences, transmitting it again to man, in whom it resumes its normal characteristics. The disease of swine known as *rothlauf* in Germany, and as *rouget* in France, is in England popularly called "pig's scarlatina," on account of the red erythematous eruption on the skin, but the absence of renal phenomena and the fact that lesions of the intestines are an essential feature would suggest a nearer relation to enteric fever. But Behle* reports a remarkable outbreak of what appears to have been the true human scarlet fever in swine. He states that in a district where *rothlauf* had never been known a severe epidemic of scarlet fever among the children was followed or accompanied by a very fatal disease among the pigs at the same farmhouses and cottages. The symptoms included erythema, angina, albuminuria, and those of uræmic poisoning, which (or the angina) were the usual causes of death, while in such as recovered desquamation of the skin was well marked. The lesions in the kidneys, observed after death, were very characteristic. A previously healthy pig having been inoculated with the blood of a child suffering from a severe attack died after a week's illness, with symptoms and *post-mortem* appearances which were identical with those seen in the human subject and in the animals which had contracted the disease presumably from the children or from one another. If the facts be correctly reported, the conclusion that swine are susceptible to true scarlet fever is irresistible.—*Lancet*, September 10th.

THE CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

Thursday.

THE Annual Congress of the Royal Institute of Public Health was opened in Dublin, August 18th, and in regard to attendance of members, work done, and the generous hospitality of

* Centralblatt für Bakteriologie, Abtheilung i., Band xxi., Nos. 20 and 21.

the Irish metropolis may be looked upon as a most successful meeting. The Lord Mayor of Dublin and Professor W. R. Smith (President of the Institute) assisted the President of the Congress, Sir Charles Cameron, in receiving the members, and in thus formally inaugurating the proceedings. The reception was held in Trinity College, and was attended by many Irish and English mayors and Scotch provosts. Sir Charles Cameron's address dealt with the sanitary developments in Dublin, and was listened to with great interest.

The members then adjourned to the Royal University, where the exhibition had been installed. At 12.30 their Excellencies Earl Cadogan, K.G., and the Countess Cadogan arrived in state. They were attended by a distinguished party, and were received first by the Senate of the University and then by the President, the Lord Mayor of Dublin, and the members of the council. Having entered one of the large halls, an address was presented to their Excellencies, and the Lord Lieutenant made a brief reply, in which he expressed the deepest interest in the science and practice of sanitation, and offered a hearty welcome to the distinguished guests. Immediately afterwards the High Sheriff of Dublin (Alderman Pile) entertained over 600 guests to luncheon in the Great Hall of the University, and brief but suitable speeches were delivered.

In the afternoon there was a garden party at the Viceregal Lodge, for which 2,000 invitations had been issued. Their Excellencies received their guests, and subsequently walked about the grounds and engaged in conversation with very many of the visitors. In the evening there were promenade concerts at the Royal University and in the Lyric Hall; some members of the Corinthian Club gave a performance. The theatres were also crowded.

Friday.

In the Section of Preventive Medicine and Vital Statistics the Registrar-General, Dr. T. W. Grimshaw, C.B., took the chair. Dr. R. B. Mahon, F.R.C.S.Eng., Ballinrobe, read a paper on "The Causes and Management of Outbreaks of Typhoid Fever occurring in Rural Sanitary Districts."

Tuberculosis.—Dr. George B. White, F.R.C.S.I., read a paper on "The Microbial Infection of Milk and other Food Material." Dr. Joseph O'Carroll read a paper on "The Duties of the Community with regard to Tuberculosis." He pointed

out that the average deaths from so-called zymotic diseases in Ireland was 8,000 as compared with 12,000 from tuberculosis. An unpleasant fact was that, while in England, Wales, and Scotland the mortality from tuberculosis was decreasing, in Ireland it was increasing.

After discussion the following resolution was adopted:

> That from a consideration of the serious mortality from tuberculous disease and the known connection of tuberculosis with a bacillus which can, by the adoption of proper means, be destroyed, this section is unanimously of opinion that immediate steps should be taken to consider the question whether tuberculosis should be added to the list of notifiable diseases, and what other effective steps should be taken with a view of reducing the mortality from this disease.

At the Conference of Veterinarians, under the presidency of Mr. Hedley, the following resolutions were passed:

> That this conference is satisfied that tuberculosis cannot effectually be brought under control unless special provisions are made for periodical inspections by qualified medical officers and by persons engaged in the general supervision and care of food-producing animals.
>
> That this Conference, recognising the utility of tuberculin as a most valuable aid in the diagnosis of tuberculosis, and as its indiscriminate use would be fraught with danger, and would be open to abuse, considers it advisable that its distribution should be officially controlled, and its application or use should be placed in the hands of qualified veterinary surgeons only.—*The British Medical Journal.*

Cases.

BY W. OWEN WILLIAMS, F.R.C.V.S., F.R.S.E., NEW VETERINARY COLLEGE.

WHEN going a short voyage recently, a curious incident happened, and was as follows:—

On Sunday evening, 21st August, a Yorkshire terrier, the property of one of the passengers, went a missing. On Monday it was not to be found, and the owner thought someone had perhaps stowed it away, as he was convinced that it wouldn't have jumped overboard. On the Tuesday the captain ordered a search to be made, and someone suggested that it might have fallen down the hold, as the hatch had been opened on the Sunday to get something out. On the hold being examined no sign was seen of the dog, but just as the men were coming away a faint yelping was heard from the hold below, which was partially filled with coals for the engines. After digging down into the coal, the dog was at last found, in a very exhausted condition, and the only injury was a slight injury to the right hind leg. When

offered water he lapped it most eagerly, and showed intense thirst, and could hardly lap it quickly enough. By the end of the voyage he was all right.

The remarkable thing was that all Monday the stokers had been taking coal from there, and it was continually running down towards the opening near the furnaces, and must have been running over the dog, and also that many baskets of coal had also been carried right across the place where the dog was buried.

On September 14th, whilst walking from the station down Leith Street in Edinburgh, I saw a man feebly trying to separate a bull-terrier from a Dandie Dinmont, which the terrier had by the ear. A boy suggested to the man to strike the terrier with his stick, which he did, and the terrier then let go, and bolted into the middle of the street, but was there overtaken by the Dandie. A cart-horse drawing a heavy load of wood was coming up at the time, and put his fore foot on the Dandie's back, and broke it. The horse gave a start forward, and with his hind foot again struck the Dandie—which rolled over—then the near fore wheel went over the dog's neck, and caused the cart to "dump," and after that the dog crawled away on his fore legs to the side of the street, where its owner was standing. A crowd was round in a moment, and I had no heart to push through as I was so horrified, and didn't think it would live another moment.

They say a cat has nine lives, but I think from these two experiences witnessed by myself that a dog takes even more killing than a cat.

PRIMARY TUBERCULOSIS OF THE KIDNEY IN THE CAT.

BY W. R. DAVIS, M.R.C.V.S., NEW VETERINARY COLLEGE, EDINBURGH.

A CAT was brought to the college for treatment in May last, its owner, an old lady, stating that the animal was perfectly healthy up to about three months ago, when it began to lose flesh, and its appetite became capricious, but no other symptoms whatever were manifested—nothing to indicate troubles of the respiratory, digestive, or urinary organs.

The old lady dated the cat's illness to the time when she herself had suffered from what appeared to have been ptomaine poisoning, from eating tinned salmon, the cat also partaking of the fish.

On examining the patient I found it to be greatly emaciated and anæmic. The respirations and heart-beat did not seem much disturbed.

On palpating the abdomen I found tenderness about the loins, and my fingers were quickly arrested on touching the kidneys, which could be distinctly felt, and gave the impression of being covered by knobs. The feel suggested something more pronounced than the hobnail kidney condition of interstitial nephritis—multiple tumours, perhaps.

The owner was given no hope of the patient's recovery, and sorrowfully agreed to have it put away.

The cat was immediately killed by prussic acid. On making a *post-mortem* examination the kidneys were found to be somewhat smaller than normal. The capsules were adherent. The surfaces of both kidneys were raised into irregular-shaped projections, some of these being no larger than pin heads, some as big as a large pea. On cutting into the organ these projections were seen to be yellowish in colour. They were dry and fairly firm. They were not confined to the surface of the organ, but went deep into the cortex; and similar yellow areas could be seen in the medulla, where, however. they were not nearly so abundant.

The other abdominal organs were examined, but no trace of similar growths could be found. The thoracic organs also were normal. The absence of disease in the other organs made me pass over tubercle in trying to fix on the probable nature of these caseous-looking nodes, which I put down to multiple tumours which had undergone retrograde changes.

On hardening a portion and examining microscopic sections from it, the structure of the lesion at once suggested tubercle, and on staining by the Ziell Neillsen method, Koch's bacilli were found in enormous numbers.

Professor Israel, of Berlin, recently stated before the Surgical Society that primary tubercle of the kidney is in the human being commoner than is suspected. Sixteen out of twenty-one patients operated on by him for tuberculosis of kidney were primary, the bladder and urethra being free. Fourteen per cent. had both kidneys affected. These, of course, exclude cases of acute tubercle, which are not fit subjects for operation.

Professor Israel says that there are three forms of the disease :—

1. A cavernous form with suppuration about the capsule.
2. A form in which the papillæ are involved, and which has hæmaturia as a prominent symptom.

3. Nodose condition in which the whole of the kidney is occupied by nodes of various sizes.

In cases where the kidneys and genitals are affected, the infection is stated to come by blood and not by continuity merely.

This case I thought to be worth recording on account of the rarity of primary or even secondary tuberculosis of the kidney in the lower animals, and to point out how easy the condition may be diagnosed by palpation.

It is to be remarked, too, that here was a source of infection to the human being little suspected.

Editorial.

ON PROCEDURE.

I AM pleased to see that Mr. Dollar, in the *Veterinarian*, has drawn attention to the irregularities in our procedure when we meet in council as members of the Royal College. I venture to introduce some extracts from Sir Thomas Erskine May's great work on Parliamentary Practice for the information of such of my readers as may not be acquainted with that important book. Our English Parliament is not only the most important deliberative assembly in the world; its forms and rules are, in nearly every respect, models which deserve to be carefully studied and minutely imitated, as, indeed, they have been studied and imitated by most bodies of men who meet together for the transaction of important business, and who wish to transact that business securely and expeditiously. The procedure of Parliament has been excellently codified by Sir Thomas, and his book is a masterpiece of clear exposition which ought to be read and pondered, if not in whole, at any rate in part, by all members of Council.

After stating in a general way, "When an amendment has been proposed to a question the original motion cannot be withdrawn until the amendment has been first withdrawn or negatived, as the latter, until disposed of is, in fact, more immediately under consideration, having been interposed after the original question was proposed," Sir Thomas goes on to say:—

> The object of an amendment is, generally, to effect such an alteration in a question as will enable certain members to vote in favour of it, who, without such alteration, must either have voted against it, or have abstained from voting. Without the power of amending a question, an assembly would

have no means of expressing their opinions with consistency; they would either be obliged to affirm a whole question, to parts of which they entertained objections, or to negative a whole question, to parts of which they assented. In both cases a contradiction would ensue, if they afterwards expressed their true judgment in another form. In the first case supposed, they must deny what they had before affirmed; and in the second, they must affirm what they had before denied. Even if the last decision were binding, both opinions would have been voted, and probably entered in their minutes, and the contradiction would be manifest.

Sometimes the object of an amendment is to present to the house an alternative proposition, either wholly or partially opposed to the original question; and the form of an amendment is here convenient, as affording the house an opportunity of deciding, in one proceeding, upon the two propositions.

The confusion which must arise from any irregularity in the mode of putting amendments is often exemplified at public meetings, where fixed principles and rules are not observed; and it would be well for persons in the habit of presiding at meetings of any description to make themselves familiar with the rules of Parliament in regard to questions and amendments, which have been tested by long experience, and are found as simple and efficient in practice as they are logical in principle.

An amendment may be made to a question (1) by leaving out certain words; (2) by leaving out certain words in order to insert or add others; (3) by inserting or adding certain words. The time for moving an amendment is after a question has been proposed by the speaker, and before it has been put. It is customary and more convenient to give notice of an amendment; but it is competent for any member to propose an amendment without notice; nor is another member, who may have given notice of an amendment, entitled to precedence on that account; as, according to the rules of debate, the member who first rises and is called by the speaker, being in possession of the house, is entitled to conclude with any motion which may properly be made at that time. The order and form in which the points arising out of amendments are determined, are as follows:—

1. When the proposed amendment is to leave out certain words, the speaker says: "The original question was this," stating the question at length; "since which an amendment has been proposed to leave out the words," which are proposed to be omitted. He then puts the question: "That the words proposed to be left out stand part of the question." If that question be resolved in the affirmative, it shows that the house prefer the original question to the amendment, and the question, as first proposed, is put by the speaker. If, however, the question, "That the words stand part of the question," be negatived, the question is put with the omission of those words, unless another amendment be then moved for the insertion or addition of other words.

2. When the proposed amendment is to leave out certain words, in order to insert or add others, the proceeding commences in the same manner as the last. If the house resolve—"That the words proposed to be left out, stand part of the question," the original question is put; but if they resolve that such words shall not stand part of the question by negativing that proposition when put, the next question proposed is, that the words proposed to be substituted, be inserted or added instead thereof. This latter question being resolved in the affirmative, the main question, so amended, is put. It s sometimes erroneously supposed that a member who is adverse both to he original question and to the proposed amendment, would express an opinion favourable to the question by voting, "That the words proposed to be left out stand part of the question." By such a vote, however, he merely

declares his opinion to be adverse to the amendment. After the amendment has been disposed of, the question itself remains to be put, upon which each member may declare himself as distinctly as it no amendment whatever had been proposed. If, however, he be equally opposed to the question and to the amendment, it is quite competent for him to vote with the "noes" on both.

Attention to these simple rules would have prevented some occurrences at past meetings of the Royal College. Sir Thomas adds further :—

All questions should be limited, as far as possible, to matters immediately connected with the business of Parliament, and should be put in such a manner as not to involve opinion, argument, or inference; nor are any facts to be stated, unless they be necessary to make the question intelligible. In the same manner, an answer should be confined to the points contained in the question, with such explanation only as will render the answer intelligible, without discussion; but a certain latitude is sometimes permitted, by courtesy, to ministers of the Crown. It is irregular to refer to past debates, either in a question or answer, but a departure from this rule has been occasionally permitted, in order to clear up misunderstandings. When a question has been fully answered, a member will not be allowed to repeat it.

It is an ancient order of the House of Lords that,—

"No man is to speak twice to a bill at one time of reading it, or to any other proposition, unless it be to explain himself in some material part of his speech, but no new matter, and that not without the leave of the House first obtained. That if any lord stand up and desire to speak again, or to explain himself, the lord keeper is to demand of the House first, whether the lord shall be permitted to speak or not; and that none may speak again to the same matter, though upon new matter arising out of the same; and that none may speak again to explain himself; and if the cause require much debate, then the House to be put into committee."

In the Commons, the privilege of explanation is allowed without actual leave from the House; but when a member rises to explain, and afterwards adverts to matters not strictly necessary for that purpose, or endeavours to strengthen by new arguments his former position, which he alleges to have been misunderstood, or to reply to other members, he is called to order by the House or by the Speaker, and is desired by the latter to confine himself to simple explanation. But here, again, a greater latitude is permitted in cases of personal explanation, where a member's character or conduct has been impunged in debate.

The proper time for explanation is at the conclusion of the speech which calls for it; but it is a common practice for the member desiring to explain to rise immediately the statement is made to which his explanation is directed, when, if the member in possession of the house gives way and resumes his seat, the explanation is at once received; but if the member who is speaking declines to give way, the explanation cannot then be offered.

A second speech has been allowed to a minister who had spoken early in the debate in answer to a question which had rendered a ministerial explanation necessary, or to answer a question addressed to him after he had spoken; and also to members who had merely spoken upon an incidental issue, and not upon the main question.

It is a wholesome restraint upon members to prevent them from reviving a debate already concluded, for otherwise a debate might be interminable; and there would be little use in preventing the same question or bill from being offered twice in the same session, if, without being offered, its merits

might be discussed again and again. The rule, however, is not always strictly enforced; peculiar circumstances may seem to justify a member in alluding to a past debate, or to entitle him to indulgence, and the house and the speaker will judge in each case how far the rule may fairly be relaxed.

I may again refer to Sir Thomas if I find that the proceedings of the Royal College should not rise to the level of parliamentary debates, but doubtless the spirit of emulation on the part of my colleagues will render such comparisons useless.

I should like, in conclusion, to draw attention to an irregularity which, as much as any other, troubles our deliberations; this is the appointment of hours for committee-meetings. A number of such meetings are called for various hours, let us say for 2, 3, and 4 p.m. A member, with many engagements, has arranged to meet, let us suppose, an important client in the West-end at 4.30 p.m., but he wishes very much to be present at the 3 o'clock meeting, his special interests being then at stake, or his special knowledge forming a vital element in the debate. If business were promptly conducted his meeting would be called at the appointed hour, he would say what he has to say, and would yet be able to keep his other engagement. What does he too often find? The 2 o'clock meeting drags along slowly for want of attention to the laws of debate, and when 3 o'clock arrives the business under discussion is not nearly exhausted, but goes on intruding upon the next hour till perhaps 3.30 or 3.45 is reached, and then arrives at wearisome conclusions. The 3 o'clock meeting is summoned at 3.50, but our busy friend is so exasperated by the delay and feels so keenly the inadequacy of the time left at his disposal, that he resolves not to take his seat at the meeting, but at once to leave the council chamber. Thus a great loss of power is caused, and not only of power but of time and of temper. Surely a remedy might be found for all this. If we cannot all at once adopt Sir T. E. May's code, we might at least pass a resolution that each committee meeting shall be called exactly at the hour appointed. If the previous meeting has not then finished its deliberations, let it be adjourned, definitely or indefinitely. This to me seems the only way of securing punctuality and despatch of business. If speakers knew that their time was limited, they would not be so prodigal of it; they would get up their subjects more carefully and more thoroughly, and so be able to discuss them more briefly. Your diffuse speaker is always a loose thinker. Busy men with an earnest purpose would know that their voice would certainly

be heard in the assembly if they appeared at the appointed hour, and they would no longer take a mere half-hearted interest in the debates, as not knowing whether their time and their skill might not be wasted by prolixity on the part of speakers, or want of firmness on the part of a chairman.

SWINE FEVER.

THIS plague is certainly the bugbear both of the Board of Agriculture and of the county councils, and members of these must, I feel sure, often be at their wits' end for remedies. Slaughtering of diseased animals and of others that have been in contact with such seems to have little effect in mitigating the virulence of the disease or reducing the number of outbreaks. But are we to conclude from this that the disease is ineradicable? Surely that cannot be the case in the present advanced state of medical science, when the word "impossible" has been practically banished from our dictionaries. But why should the disease linger so long amongst our herds of swine? Many contagious diseases which made their appearance in this country, long after swine-fever, have been completely eradicated in the interval. One thing appears to me quite certain: as long as there is the present lapse of time between the first report of suspected disease and the putting in force of the means of stamping it out when verified, so long will the disease continue to spread.

Let me take an extreme case by way of illustrating my meaning in the plainest way. A pig-feeder suspects on a Saturday morning that he has contagious disease amongst his animals and reports the matter. The probability is that the Act will not be in operation till the following Tuesday! Yet it is well known that the disease spreads with great rapidity: where there were two animals affected on Saturday there may be a dozen ill on the following Tuesday.

In the old days the procedure was different. As soon as the police constable was informed of an outbreak he at once communicated with the district veterinary surgeon, who in his turn took immediate action, so that in the majority of cases everything was *finished* in the course of a day or two. Then why has all this been changed, and changed for the worse? It looks as if the Board of Agriculture had grown timid and become afraid of the prompt and decisive action of the district surgeons, or as if it had been strangled with red-tape and officialism. At any rate it has lost faith in the

general veterinary practitioner or in the capacity of local authorities to guide him or keep him in check. The Board seems to think that no one can diagnose the disease except its own officials and—what is still more serious, I might say, fatal—that no one can take measure for suppressing an outbreak except the Board's own travelling inspector. It may be true that occasionally mistakes were made by practitioners either in the direction of laxity or severity, but these mistakes would gradually have diminished with increasing knowledge, just as it always has been, both in the medical and veterinary world, in the case of new and strange diseases, until men have learnt to fight and conquer the insolent foe. As matters at present stand, there is no chance of acquiring knowledge of this disease left open to young veterinary students. I know it is forbidden to take a pupil into an infected place. How then, and by what means is the younger generation to gain its knowledge of the nature, the symptoms, and the suppression of swine fever? Knowledge of this kind gained from hearsay and from books is always inadequate; it must be supplemented by clinical instruction. One trembles to think of the future, when the present officers of the Board shall have been removed by death. Nobody will be there to take their place, and our herds of swine, like those of the Gadarenes, will rush violently to destruction. The outlook is very serious, not only from the professional but from the economic point of view.

My readers may now ask if I have any practical remedy of a far-reaching nature to suggest? Well, in my opinion, if piggeries were licensed by Government, and inspectors had powers to order them to be pulled down or burnt in the case of violent outbreaks of disease, to only grant licenses to suitable places, we should very soon get rid of swine fever. What is there impracticable in my suggestion? Yet I am informed by a farmer friend that when he, on a recent visit to London, suggested this to the Board, he was looked upon as hardly sane! There is no help for it; we must adopt the Mosaic code as soon as possible and abjure the flesh of swine. And yet our morning bacon is so palatable!

MR. STANTON, D.V.S., veterinary surgeon to Messrs. Barnum and Bailey, some little time ago recorded a unique case of fracture of the femur, with recovery, in a young elephant.

Mr. Stanton was good enough to show us photographs of the recovered fracture, the elephant having been destroyed on account of acute rheumatism affecting his fore limbs.

It must have been a herculean task from beginning to end, as the patient was far from being patient, and it was a matter of impossibility to keep it still for any great length of time.

At all events Mr. Stanton did manage, with many contrivances, to keep the part so far still, that a temporary callus formed, and ultimately the fractured ends became united.

We should think it a matter of no small difficulty to diagnose it, and should, until now, have had great hesitation in endeavouring to treat one. In this we should not have been alone, as two of our confrères in America doubted the possibility of the fracture having taken place at all, when shown the elephant some time after its recovery.

Obituary.

We regret to announce the death of our old friend, Mr. T. D. Broad, of Bath. During his long career as a veterinary surgeon (his diploma bears date of January, 1842), he made a special study of the horse's foot, and the shoeing of it, and we have no hesitation in saying he was the greatest authority on such matters in Britain. From 1861 to 1874 Mr. Broad was a member of the Council of the Royal College of Veterinary Surgeons, London, and was elected a Fellow of the R.C.V.S. in 1877. For a considerable time he was consulting veterinary surgeon for the county of Somerset, veterinary inspector for the city of Bath, and surgeon to the Bath S.P.C.A. Mr. Broad never took an active part in public life, but devoted himself almost entirely to the profession of which he was so distinguished a member.

For the last ten years of his life he had retired from active practice, and devoted his time to work in his library.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting was held at the Grand Hotel, Manchester, on September 1st, J. McKinna, Esq., presiding, and the following members also attended:—Messrs. H. D. Chorlton, E. Faulkner, Peter Gillespie, Hy. Hall, Alfred Holburn, T. Hopkin, Joseph Kendall, Sam Locke, H. Locke (hon. sec.), E. H. Stent, W. A. Taylor, Chas. Ward, and J. B. Wolstenholme, Manchester; A. New, Aston-under-Lyne; A. Munro, Altrincham; W. Kendall, Barrow-in-Furness; Thos. Dobie, Birkenhead; T. J. Davies, Bootle; J. H. Carter, Burnley; R. J. Bailey, W. Noar, and W. Packman, Bury; J. Norbury, Chelford; R. C. Edwards, Chester; R. O. Stafford, Crewe; E. S. Gubbin, Glossop; G. Gartside Mayor, Kirkham; Jas. Marshall, Knutsford; Robt. Roberts, Liverpool; R. Hughes, Owestry; C. E. Challinor, Pendlebury; Ben Ferrie and A. M. Michaelis, Stockport, and Wm. Woods, Wigan. The visitors were Messrs. S. G. Chellew, Deans, Bishop Auckland; J. J. Garside, H. C. Harrison, A. H. Hart, H. A. Turner, R. S. White, Glossop; and D. Wyllie.

The SECRETARY announced letters of apology for non-attendance from Messrs. Dixon, H. H. Ferguson, Parker, Hodgkins, A. and J. Lawson, Jos. Abson, and Mackenzie.

The minutes of last meeting were taken as read, on the motion of Mr. W. A. TAYLOR, seconded by Mr. FAULKNER.

The SECRETARY having read the minutes of a special meeting held to consider a letter from the Veterinary Congress, Dublin, the same were approved.

Elections and Nominations.

Mr. R. J. Bailey, M.R.C.V.S., Bury, was elected a member of the association upon Mr. PACKMAN'S proposition, which was seconded by Mr. H. LOCKE. Mr. Alf. Hodgkins, M.R.C.V.S., Hanley, was also elected a member, the resolution being proposed by Mr. H. LOCKE, and seconded by the PRESIDENT.

The PRESIDENT nominated Mr. Charles Drabble, M.R.C.V.S., Bradford, and Mr. H. LOCKE nominated Mr. W. Kendall, M.R.C.V.S., Manchester; while Mr. WOODS nominated Mr. Ralph Rimmer, M.R.C.V.S., of Kendal.

A notice of resignation from Mr. F. W. Hall having been laid upon the table, it was moved by Mr. CARTER, and seconded by Mr. FAULKNER, that it be accepted with regret.

The PRESIDENT and Mr. WOLSTENHOLME, who were delegated by the society to represent it at the Royal Congress on Public Health, held in Dublin, August 18th to 23rd, made their report, in which they spoke most highly of the number and excellence of the papers read and discussed in the veterinary section, and of the generous hospitality afforded to them by the officers of the congress, the Lord Mayor of Dublin, and other gentlemen of position and influence in the Irish capital. It was resolved that the president and members of the Lancashire Veterinary Medical Association having heard the report of their delegates, desire to convey to the president and executive officers of the congress, that a unanimous vote of thanks was accorded them for the immense field of scientific usefulness which was opened out, and for the most generous hospitality given to the society's representatives.

The resolution was seconded by Mr. WOLSTENHOLME, and carried unanimously.

The PRESIDENT having read a letter respecting International Congress to be held at Baden-Baden, it was moved by Mr. WOLSTENHOLME, and seconded by Mr. CARTER, that the subject be postponed until the December meeting.

On Dilatation of the Capsule of the Hock and Stifle Joints in Horses and their Treatment.

BY PROFESSOR MCCALL.

Dilatation of one or both of these capsules is a frequent occurrence. It is the bane of horse-breeding, and has been the cause of many a good colt being castrated who otherwise would have been kept entire. As a profession we are frequently consulted and requested to treat these enlarged joints; we frequently do so, and have to confess that we often fail in reducing them; in fact, those of us who have had much experience in their treatment, incline to let them alone, or, at most, content ourselves with an outward application of some stimulating embrocation or adhesive plaster.

The affection is recognised by a more or less marked enlargement of the capsule of the joints, but the hock and stifle joints are almost exclusively attacked. This swelling may make its appearance early in life and be associated with "joint ill," or it may not appear till immediately before or shortly after the foal has been removed from its dam. In some cases there never was an increase of heat in the joint, nor pain on pressure, nor stiffness or lameness. In other instances these have existed from the first, or were exhibited sooner or later. In some cases the animals grow up perfect specimens of their kind with the exception of the distended capsules; in other cases they are never sound, but markedly lame if pulling heavy loads. In short, in one animal it is a serious defect, in another of not much consequence, but in all it justly renders them legally unsound.

If the affection is confined to the hock joint, the dilatation may gradually disappear without treatment of any kind. I have had quite a number of such cases. But if the affection attacks the stifle joints, the enlargement is certain to remain, unless removed by aspirating the joint. The disease, in its mildest form, consists in an excessive secretion of synovia, which, pressing unduly on the synovial membrane and its delicate fibrous capsule, leads to a passive dilatation of these structures. It is generally described as a *hydrops articuli*, or "dropsy of the joint," but an examination of the liquid drawn by aspirating the joint has shown it to possess the usual characters of a normal synovial fluid.

As all practical veterinarians know, dilated capsules of the hock are very common, and, whether large or small, they are generally denominated "bog spavins," rendering the animals so designated legally unsound, but, I venture to say, in 95 cases out of 100 in no way affecting the animals' usefulness and powers of endurance. I repeat that I have paid the greatest attention to these enlarged capsules of the hock, or so-called "bog spavins," and rarely, in comparison to their numbers, have I found lameness in the hock to be associated with their presence. Indeed, if the horse pleases me in other respects, and has the power of free flexion and extension of the hock joints, while I cannot pass the animal as sound, I seldom reject him. On the other hand, if a horse has an enlarged stifle, however small, I neither pass that animal nor do I advise his purchase even at a reduced price.

Both affections are similar in character. Why, then, it may be asked, does the hock affection so seldom end in disease of the structures of the joint and consequent lameness, whereas the ultimate result of the stifle affection is the reverse? Several reasons can be adduced.

In the first place, quite a number of conditions do lead to temporary distension of the capsules of the hocks, but which have no such effect on the stifles.

I will name a few of the more important: (1) Conformation. A horse with a straight conformation of hind limb invariably has the capsules of his hock joints distended, and the straighter the limb the more pronounced is the

swelling, or so-called "bog spavin" in front. In Scotland we have a family of Clydesdale horses in which this conformation is conspicuous. The celebrated "Prince of Wales" stallion belonged to this family, and, being one of the best and most impressive of sires, he has transmitted the same conformation of hocks to a large number of his progeny. He lived twenty years, and on an average would serve a hundred mares per annum. When four years old, on account of the conformation of his hocks, he was condemned for "bog spavins," and lost the prize for which he was contending. I knew the horse during the whole of his life. He never was lame, nor the size of his hocks altered, and to the day of his death his action was the admiration of Clydesdale breeders. "Bog spavin" is generally defined as an enlargement of the capsule of the hock, due to an inflammation affecting the synovial membrane, a synovitis; but in the case to which I have referred, and in all similar distensions of the capsules of the hock joints, synovitis plays no part in the *rôle*, and therefore I make it my study to operate on such hocks. Nor do I look upon the animal as unsound from disease, but point out the condition as a defect in conformation. The straight conformation of limb and hock joint, owing to the greater extension of the joint and consequent pressing forward of the synovial fluid when the joint is in a state of extension, *e.g.*, foot on the ground, leads to a bulging outwards and inwards of the capsule, and it thus becomes a permanent defect, and no treatment will reduce the swelling.

(2) A second cause of dilatation of the capsule of the hock joints is a weak conformation of limbs with loose joints and big bodies. Such animals leaping with their fore limbs on their mother's back, and walking on the two hind limbs in this position, are apt to have enlargements not only of the capsules of the hock, but likewise of the stifle.

A third cause of enlarged hocks is a want of exercise combined with high feeding. A promising two-year-old entire colt is shut up in a loose box and heavily fed for show purposes, ten to one his hocks commence to fill and become dilated, and if more exercise is not given and less food, the dilatation becomes a permanent one. I have known animals castrated for the sole reason that the size of the hocks rendered them unable to gain a prize, and after they had been castrated and turned out to grass the swellings entirely disappear, and that without treatment of any kind.

An increase of the quantity of the synovial secretion, and consequent distension of the capsule of the hock joint and its reabsorption is a frequent occurrence, if the conformation be a good one, but if the conformation be faulty, it remains; and therefore in the first case we should hesitate to aspirate the hock joint, and in the second case absolutely refuse to do so.

Now coming to the stifle joint. I have stated that if the capsule of the stifle has unfortunately become distended it remains so, and not only so, but in the majority of cases the fluid increases and the tissues of the joint from a chronic inflammation undergo structural alterations. I think several reasons can here again be assigned. The stifle joint is the most complicated joint in the body, its ligaments are numerous, its capsular ligaments large, and loosely attached to and supported by the surrounding textures, in order to permit of freedom of movement. In the act of flexion of the joint the synovial fluid is forcibly pressed inwards and downwards, and the fat and straight ligaments, being unable to resist the tension from within, gradually relax. The patella is thus forced out from the trochlea of the femur, the fluid gravitates downwards and underneath the straight ligaments. and the characteristic swelling due to a bulging of the synovial membrane thus makes its appearance. Now, unlike the capsule of the hock, when once the capsule of the stifle has become distended and dilated, it remains so. This

swelling may only be the size of a pigeon's egg, or as large as an infant's head. At first, and sometimes for a period of years, it feels soft and elastic to the touch, but sooner or later, as a rule, it becomes hard and firm, and the animal stiff or markedly lame. The hardness is associated with thickening of the capsule, but more particularly the synovial membrane from a chronic synovitis, and the disease, as time goes on, is also prone to attack the synovial membrane surrounding the condyles of the femur, more particularly the inner condyle, and ere long caries and necrosis invades the articular cartilages of the femur, as also the fibro cartilaginous discs and the head of the tibia.

The naked eye detects on *post-mortem* marked changes in the discs, in the centre they are of a pulpy consistence, and instead of being white and glistening, yellowish brown in colour, and the fibres surrounding their circumference broken as if torn with the point of a needle, the synovial membrane is thickened, of a red colour, and presents long villous processes not unlike placental membrane, and the synovial fluid is bloody.

Such structural changes can in no way be influenced for good by any known means of treatment, for osseous ankylosis, owing to the gliding movements of the similunar discs on the head of the tibia, can never result. It is therefore folly and a waste of time and means to aspirate the stifle joint when the femuro tibial articulation has become affected.

Before I became sufficiently instructed in the diagnosis of this form of disease of the stifle, I tried all known remedies, as for example, pyro-puncture, blistering, setoning, etc., and allowing months of rest, but in the end slaughter had to be resorted to. Now, however, if no decided benefit is effected by treatment and rest in about one month, I advise immediate slaughter, no matter how valuable the horse may appear, and the *post-mortem* revelations have not only always confirmed the diagnosis, but satisfied me that the course adopted is the best.

The diagnostic symptoms of disease of the femerotibial articulation are straight carriage of the toe, and when wheeled turning lightly on the affected limb, or more frequently turning on the sound limb and refusing to use the lame one. In the trot, hopping on the three sound and carrying the lame one *well up*. A horse with caries of the hock also hops on three and carries the lame one, but the hock is not flexed, and the toe is almost in contact with the ground, the reverse is the position, viz., *powerful flexion of the joint* and consequent *high carriage of the toe*. Then, again, when standing undisturbed the toe of the lame limb rests lightly on the ground and is placed rather in front of the other foot, a continuous pain being felt; the foot is at short intervals moved spasmodically forwards, and gives the idea as if he was desirous of grasping something with the toe of the foot. Occasionally the limb is pulled up, the hock firmly and completely flexed and kept in this flexed position for a length of time. In again extending or lowering the limb, it is observed to be done, as it were, in stages, the first, second, and third acts slowly performed and with evident pain, and the last act of extension like the last act of flexion completed with a spasmodic jerk. The marked wasting of the muscles above the stifle and over the quarters is also so far confirmatory of the diagnosis, but I attach more importance to the symptoms exhibited by the animal when at rest in the stall.

Coming now to the subject of treatment of these dilated capsules by aspiration, I may remark in passing that 30 years ago I aspirated a few "sponny hocks" and "distended bursal," using a clear glass bottle; the air within which I had exhausted by a small air pump, but my success did not warrant its continuance. This method of treatment has been revised by my friend and pupil, Mr. Deans, veterinary surgeon, Bishop Auckland, and in his hands I understand that it has been attended with a considerable amount of success.

The instrument which Mr. Deans uses and which I now show you, is an ingenious one, and in practice I have found it simple and thoroughly efficient. Mr. Deans has placed in our hands *the instrument*, and he has been further pleased to take his professional brethren into his confidence and to tell them the contents of the liquid which, after aspirating the joint, he injects. Such conduct is worthy of all praise, and in marked contrast to the course pursued by some members of the profession, and I am sure meets with your as well as my own unqualified approbation and thanks.

But allow me to say that aspirating joints is not a remedy to be lightly undertaken—indeed, the very reverse; and we as a profession must be very careful how far we recommend or willingly lend ourselves to the performance of the operation. That it is an hazardous and uncertain operation I have no hesitation in asserting, and, being so, your duty and mine clearly is to acquaint our client with the fact that in some cases it is a great success, in others a complete failure, or even worse; and in all, if the operation be thoroughly performed, viz., the joint exhausted of its synovial secretion, and thereafter injected with the liquid, a cause of excruciating pain and suffering for not less than 24 hours. If after this the client decides to run all risks, then the subject should be prepared for the operation.

In casting the horse I prefer the hobbles to the sideline, for this reason. To my mind it is all important that only one puncture of the joint should be made, and that neither bone nor cartilage of incrustation should be injured by the point of the needle, and for these and other reasons which will suggest themselves to you I consider that it is imperative that the animal be chloroformed. If the animal be not chloroformed (probably cocaine may be found to suffice), he struggles much, and I have thus seen the needle bent, the capsule punctured several times and but little of the fluid removed, or the liquid injected. I do not say that the operation cannot be done without the administration of the anæsthetic, but being a grave operation in so far as the future of the animal is concerned, every precaution should be adopted, and therefore I not only place the animal under chloroform but also shave the hairs and render aseptic the wound and instruments employed. The operation having been successfully performed the limb operated on should be taken out of the hobble and freely flexed and extended a few times, so as to distribute the injection all over the joint and thus prevent its acting more on one point of the synovial membrane than the other.

In a meetiug such as this it is unnecessary reviewing the very varied anatomo-pathological conditions which may result from aspirating a joint. The structural changes produced may be trivial, amounting to no more than a slight thickening and contraction of the capsular structures of the joint with diminished secretion, which is exactly what is desired; or intense and extensive inflammation of the synovial membrane, thickening and hardening of the capsule, no decrease in its dimensions, but rather an increase, and lameness, in cases where lameness had never existed prior to the operation. In proof of these averments I will now cite three cases all operated on by the method recommended by Mr. Deans.

No. I. Bay Clydesdale mare, enlarged capsule or "bog spavin" or hock, no use for exhibition. After operation took several first prizes, the hocks being normal in size and to the feel.

No. II.—Bay Clydesdale stallion, three years of age, enlarged stifle joint, capsule size of a goose egg but soft, no lameness, has been blistered several times but with no reduction in the size of the swelling. Cast for the operation with sideline; great difficulty in passing the needle through the thickened skin, animal struggling much. Several punctures made, needle bent; scarcely any synovial fluid aspirated and but little fluid injected. The animal not being under chloroform was allowed to get up immediately after the opera-

tion and walked to his box quite sound. It is nearly four months since this stallion was operated upon, and in a letter from the owner of the animal received by me on 22nd August last he says "I am sorry to report that there is no difference in the horse's stifle operated on by Mr. ————. After the operation the part slightly swelled and the horse walked somewhat lame, but nothing to fever the animal or make him perspire. The swelling is just as before, soft to the touch and about the same size."

No. III.—Clydesdale stallion, three years of age, he was a healthy foal of good conformation of joints, and until four months old there was no enlargement of the stifle joint. He was always a playful foal, and frequently he was observed walking on his two hind feet with his two fore limbs resting on his mother's back. As his progenitors for generations had no enlargement of their stifle, the enlargement in his case was believed due to the strain on the joint produced by his so frequently walking on his hind limbs.

The animal having finished service for the season, it was determined to perform Deans' operation to get rid of the swelling, although the animal was never either stiff or lame. The swelling affected the near stifle, and in size and character was the identical same as No. 2, but rather if anything less in size. The horse was cast and secured by hobbles, chloroformed, the joint aspirated, and by one puncture of the needle the whole contents of the stifle joint were drained off, and thereafter Dean's fluid injected. The fluid withdrawn proved normal synovia, and in quantity measured three ounces. The horse never moved under the operation, and lay for ten minutes thereafter, and when allowed to rise he walked almost on three limbs back to his box. For twenty-four hours he suffered the most excruciating pain, lay down and got up frequently, breathed hurriedly and perspired profusely. He drank a little water, but refused all food.

In 12 hours after the operation the capsule of the stifle was larger than ever, and the heat intense. When in the erect position he stood on three limbs, and obstinately refused to move.

About the third day after the operation he could mark the foot on the ground, but still carried no weight with it.

In a week he could walk, in a way, to the doors of his loose box, but carefully avoided carrying much weight on the maimed limb.

In a fortnight he could use the limb; and what a blessing! for the other hind limb, from so long carrying the entire weight, had failed him.

On Saturday last he presented a sorry picture of his former self, having lost his middle piece, and unable to do more than crawl along at a snail's pace with his hind limbs; and, worse than all, the stifle joint is larger than ever, and the muscles above it, especially the *triceps couralis*, are less in volume from want of exercise. He also now walks on the point of the toe, on the limb operated on, and does not allow the heels of the shoe to touch the ground.

How this case may finally terminate no one can say; but, as the animal is my property, he will receive, as he has received, every attention, and I shall be pleased to let you know the result.

The prescription recommended by Mr. Deans "as an injection after the synovia has been drawn from the joint" is:—

R. Hydrarg. perchlor	grs. xxx.
Spts. vini meth.	1 oz.
Decolourised iodine	1 oz.

Inject about two drams into each joint; and as I should like a discussion to follow the reading of this paper, I shall take the liberty, in order to raise the discussion, of saying that I incline to the opinion, firstly, that the fluid injection is too concentrated and too much of an irritant to the delicate synovial membrane; secondly, that only a proportion, and not the whole synovial fluid within the joint should be aspirated at one operation.

Discussion.

Mr. WOODS (Wigan) said he rose with very great pleasure to thank Prof McCall for his admirable paper, which was both practical and scientific, and treated upon a subject of vital importance to them. They all knew that the Professor was a successful breeder of, and a recognised authority on, Clydesdale horses, which were troubled with bog spavins, especially the young ones. His treatment of bog spavins had always been to leave them alone where they did not cause lameness. He had found this to be most succesful; but, of course, in speaking of Professor McCall's animal, its work was in the show-ring, and if it could be made to go into the ring its value was more than doubled. In these circumstances it might be advisable occasionally to treat bog spavin in the way the Professor had done. Continuing, Mr. Woods said he had tried various treatments. At the moment he could not call to mind any bog spavin that had permanently lamed a horse. He did not look upon this disease as very serious, and even in young badly-formed hocks where there were big bog spavins, he found that one or two firings and blisterings was sufficient to make that animal workably sound. If he found that aspiration was a successful treatment—as he was very far from convinced that it was—he should like to perform it, because it was a scientific treatment. It seemed to him that if any air were introduced to the joint, very serions results would follow. He once had a special leaderette devoted to him, which stated that he had plucked a student for answering, in connection with a question as to operative treatment for bog spavin, that, other means failing, he would not hesitate to open up a bog spavin. Certainly he (Mr. Woods) would not like to open it. The practitioner, before attempting the operation, must be very well established and must have the thorough confidence of the person who employs him. He never saw a bog spavin aspirated. In his father's time he once had the doubtful pleasure of seeing a thoroughpin aspirated. The result of the aspiration was successful, but he did not think his father ever spent a more anxious time in his life. The animal eventually recovered and the thoroughpin disappeared. He was very interested in Professor McCall's remarks about the stifle enlargement associated with lameness, and quite agreed with him that the complaint could be diagnosed when the animal stood still. They could not always advise a man to kill an animal, because if they did, even though they were convinced that it would not get better, the owner would not be very well satisfied. He had certainly setoned, fired—in fact, done everything but open them. If aspiration had cured those cases, he should feel inclined to aspirate. He was not, however, speaking of those cases where there was ulceration of the joint. If he were brave enough to aspirate, he would hesitate to inject the fluid recommended by Mr. Deans, as it caused such an amount of irritation.

Mr. FAULKNER thought all those who had seen a fair amount of practice must agree with the deductions the professor had drawn as the result of his observations and experience, both clinical and otherwise. To his mind there was, as a rule, an appreciable difference between stifle joint and hock distension—in fact, it would be found that in the majority of cases of stifle joint trouble in both young and matures animals, it was attended with a considerable degree of inflammatory action, lameness, pain, and more or less destructive processes. In hock joint dilatation, or distension, he found, as a rule, that 95 per cent. of those cases were animals that went sound, although the bog spavin remained without inflammatory action, and the town practitioner was not called upon to interfere because the animals were invariably useful. The chief need for treatment arose, as the professor had amply illustrated, with regard to hock distension, in breeding studs and show animals. Frequently he had seen in shires distended hocks, and it had been

a very important consideretion for the owners whether they could possibly reduce those hocks so as to make the animals fit for exhibition. The practitioner was at times puzzled as to what best to advise his clients. Like Professor McCall and Mr. Woods, he had endeavoured to temporise and leave things alone, suggesting that in all probability the animals might grow out of it as they became more mature, provided, of course, they were not forced too much and had a fair amount of exercise. This advice had yielded good results at times. As yet he had not been heroic enough to aspirate the stifle joint, and it would require a very great deal to induce him to do so. At the same time, if Mr. Deans could tell him whether, from his experience of his new aspirator injecting fluid, he had obtained good results in bog spavin, he would be disposed to try it. Concluding, Mr. Faulkner expressed his indebtedness to Professor McCall for the able manner in which he had handled the subject, and for his kindness in bringing it before the association.

Mr. WOLSTENHOLME thanked Professor McCall for the excellent and practical paper which he had given to them. It seemed to him that operative treatment in the case of bog spavin was one which would be practically restricted to valuable cart horses—either animals intended for the stud, or those which were kept for show purposes—and that in his experience bog spavin was rarely the cause of permanent lameness in the class of horses which came under his observation, that was to say, horses for business purposes. He endorsed what the professor had said as to the fact that many so seeming bog spavins in colts gradually diminished, and by the time the animals had reached maturity, say five or six years, had entirely disappeared. His attention had been particularly directed to this subject by a statement which the late Mr. Peter Taylor had made many years ago in the society, that such was his experience, and that he (Mr. Wolstenholme) had taken pains to note that such was the case. He well remembered a particular case in which there was first inflammation with great distension of the stifle joint, and afterwards of one hock of a cart foal. The hock attained an enormous size, and was so until the animal was about three years old, when it gradually receded, and the one could not be distinguished from the other at the age of six. With respect to the stifle joint, he had noticed a number of cases having symptoms similar to those which the professor had described. He presumed that Professor McCall referred more especially to dropsy or distension of the capsule of the joint between the femur and tibia, in contradistinction to a dropsical condition of the bursa beneath the patella, as it was common experience for the latter condition to be removed by absorption frequently when such condition had been due to an injury. He, himself, had suffered with a floating patella through coming down with a horse, but the fluid was absorbed in the course of some weeks without surgical interference. Mr. Woods had referred to the position taken up by the examiners as to operative treatment for bog spavin. He (Mr. Wolstenholme) had been answered by students that other means failing, they would not hesitate to open up a bog spavin, not simply aspirate the enlargement, but open it up in the manner one would treat a superficial abscess. Speaking for himself, he failed to conceive how it was possible that any examiner could accept such an answer as satisfactory.

Mr. R. HUGHES (Oswestry) thanked Professor McCall for his practical paper, the subject of which was undoubtedly of vital importance to breeders of horses for show purposes and early maturity, inasmuch as these animals were the most frequently affected.

Mr. G. GARTSIDE MAYOR expressed his indebtedness to Professor McCall for his valuable paper. While he had never been courageous enough to operate upon a bog spavin, he had on thoroughpins, and generally with satisfactory results—he had no disastrous results. He had always scrupulously

abstained from interfering with thoroughpins when there was any bog spavin at all about the hock. He might say that the professor's remarks had rather blanked his hopes and anticipations in regard to the suggested operation.

Mr. W. A. TAYLOR, after congratulating Professor McCall upon his valuable paper, said they looked to him, and doubtless his clients did, as to the last court of appeal, but were they, as ordinary practitioners, to advise the destruction of a horse suffering from disease of the stifle after it had been in existence for a month only, the probabilities were that they would lose their client. He did not think that the professor had brought forward the two conditions of joint as being analogous, or that anything he said in his paper would lead them to assume such, for one condition seemed to be a pathological condition, and the other simple dilatation without the disease. The latter condition was often seen—at least, he had marked it in the straight leg, and it would appear to associate itself with an error of conformation of the hock which was perpetuated from sire to offspring and from dam to offspring, and he had no necessity to traverse what Professor McCall had said as to the prominence of the synovial capsule in certain breeds of cart horses, this being the natural result of the straight hocks found in Shires and Clydesdale horses. The forcing system of breeders, whose desire was to have a horse at two years old as big as a four-year-old, had a great deal to do with bog spavin. Another cause was allowing very young sires to serve mares, and he believed that at such a time in the case of the male the greatest possible extension was forced upon the joint. With regard to the treatment of these cases he confessed to ignorance of the mode of treatment by aspiration. He quite understood Mr. Dean's aspiration for removing the fluid from the joint, but did not understand why he injected such a fluid into the joint unless it was to produce plastic inflammation. He apprehended that under no circumstances where there was lameness would Mr. Deans venture to perform aspiration on the joint, and he could only assume that Professor McCall's devotion to the science they all followed led him to permit one of his colts to be operated on in that manner. If experiments were not performed science would remain at a standstill, and it was a matter for congratulation to see a gentleman, who was at the head of the profession, going in for research as Professor McCall had done. Mr. Taylor asked whether in any of the cases of bog spavin the Professor had tried pressure by means of a truss and with what result.

Mr. DEANS expressed an opinion that distension of the stifle and distension of the capsule of the hock were two different things altogether. After demonstrating the use of his new aspirator he said the operation should always be done under chloroform and carefully. Having operated upon hundreds of cases, all on Clydesdale breeders, without any bad results he had every confidence in the success of the operation. No subscquent treatment was necessary. The animal should be walked about so as to diffuse the liquid throughout the joint.

Mr. J. H. CARTER asked Mr. Woods if after the aspiration for thoroughpin he used any pressure or weights to the hock.

Mr. WM. WOODS: Two pieces of tow and a bandage.

Professor MCCALL: Do I understand, Mr. Deans, that you do not recommend this operation for distended stifle?

Mr. DEANS: Yes, if the history was such that the animal had distended stifle for a year or so, and there was no disease of the condyles.

Professor MCCALL said he drew three ounces of fluid and then injected the fluid recommended by Mr. Deans. The question arose as to whether he did not draw off too much fluid. (Mr. Deans: It is quite possible.) If this fluid which he injected really was safe to be used, why did it cause such intense pain and suffering?

The PRESIDENT tendered his thanks to Mr. Deans for explaining his operation. This was certainly a splendid operation, but he thought the danger lay in the injection fluid, which appeared to set up great febrile disturbance.

Mr. DEANS said he would not like them to go away with the impression that the operation was an unreliable one. Not one case out of a hundred set up the febrile disturbance as named by Professor McCall. They need not have the slightest fear of performing the operation and injecting the fluid into bog spavin if there was no lameness.

Professor MCCALL said, in reply to Mr. Taylor, that he had tried an india-rubber band, and also the truss upon the hocks, and with some considerable amount of benefit.

It was proposed by the President, seconded by Mr. Taylor, and endorsed by Mr. W. Packman, that a very hearty vote of thanks be given to Professor McCall for his excellent paper.

A hearty vote of thanks was unanimously accorded Mr. Deans, on the motion of Mr. Faulkner, which was seconded by Mr. J. H. Carter.

Mr. SAM LOCKE moved a vote of thanks to the President and Mr. Wolstenholme for their report in connection with their visit to the Veterinary Congress held in Dublin.

Mr. G. G. MAYOR proposed and Mr. PACKMAN seconded, that the best thanks of the meeting be given to the President for his able conduct in the chair. The proposal was carried with enthusiasm.

Mr. HENRY HALL having seconded the motion, the proceedings terminated.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting was held at the Grand Hotel, Birmingham, on Tuesday afternoon, August 23rd. The president, Mr. H. J. Dawes, F.R.C.V.S., West Bromwich, occupied the chair, and there were also present: Messrs. Brooke, Handsworth; Crowhurst, Leamington; Rossell, Sandiacre; Trevor Spencer, Kettering; Trigger, Newcastle-under-Lyme; Wartnaby, Burton-on-Trent; Gold, Redditch; Burchnall, Loughborough; Blakeway, McGill, Malcolm, Taylor, and Tipper, Birmingham. Visitor, Mr. Gooch, senr., Stamford.

Letters and telegrams of apology were received from the following absent members:—Professor Williams, Messrs. Barrett, Barling, W. S. Carless, J. J. Crowhurst, C. W. Crofts, A. B. Forsyth, T. H. Hobson, Thos. Ludlow, A. Mason, H. Olver, and J. Wright.

The HON. SECRETARY read the circular convening the meeting, and also the minutes of the last quarterly meeting, which were duly confirmed.

Arising out of the minutes,

Mr. TRIGGER expressed his desire to return thanks to the members for having decided to again support his candidature for a seat on the Council of the Royal College of Veterinary Surgeons. He took it as a very great compliment to himself that he should have retained their confidence in that direction for a period of nine years. Unfortunately, the council was not quite a bed of roses, but so long as he was able to promote the interests of the profession in general, and of this association in particular, he should not grudge the time which his membership took up. However, he should not be sorry if the association made a fresh choice another year.

The HON. SECRETARY read letters which he had received from the families of the late Captain Russell and Mr. A. L. Gibson, acknowledging the votes of sympathy passed by the association at their previous meeting.

New Members.

The names submitted having, according to rule, been nominated at the last gathering, and published on the circular, the gentlemen were unanimously elected as follows :—

Mr. Reginald Over, of Rugby, proposed by Mr. TRIGGER, and seconded by Mr. MERRICK. Mr. E. W. Parkes, of Wellingborough, proposed by the PRESIDENT, and seconded by Mr. SPENCER ; and Mr. J. Buscombe, of Stroud, proposed by the PRESIDENT, and seconded by Mr. TAYLOR.

The International Veterinary Congress.

The HON. SECRETARY read a letter from Mr. Cope, the Veterinary Officer of the Board of Agriculture, directing the attention of the association to the International Veterinary Congress to be held at Baden-Baden in 1899. A circular letter, which Mr. Cope enclosed, was also read, containing full particulars of the congress.

Mr. TRIGGER : Do I understand that the individual subscription is 12s. ?

The HON. SECRETARY : That is so.

Mr. TRIGGER then said it might be well to inquire whether special facilities would be obtainable in the event of an association such as this subscribing. It occurred to him that this association ought to send delegates to the congress, say the president and one other member, and pay their expenses.

The HON. TREASURER pointed out that any resolution involving expenditure would have to appear on the circular as a notice of motion.

Mr. TRIGGER thought that was not a serious difficulty, as there was no necessity to come to any decision at this meeting. He would, however, now move that the honorary secretary be requested to make further inquiries, and report the result of them at the next meeting.

Mr. CROWHURST said he would second that. It seemed very desirable that an influential association like this should be represented on the occasion in question. He would like to suggest that the delegates consist of the president and secretary.

Mr. GOLD did not think it would be wise to make any appointment at present.

The matter was dismissed on the understanding that it would be brought forward again at the next meeting.

The Dublin Congress.

The HONORARY SECRETARY reported that they had also received an invitation to attend the congress at Dublin the other day, and it was suggested by some of them, in the absence of a general meeting, that the president should go as their representative. Unfortunately, the president could not get away, so the association was not represented at the Dublin meeting.

The Sanitary Congress at Birmingham.

The HONORARY SECRETARY announced that there was still another meeting to which they had been asked to send representatives, and that was the Sanitary Congress, to be held in Birmingham from September 27th to October 1st.

The PRESIDENT said that the honorary secretary, Mr. Blakeway, Mr. Parker, and himself, had been appointed to serve on the general committee. They would be pleased to see as many members of this association as could make it convenient to attend.

Financial.

The HON. SECRETARY presented a number of accounts for payment. They had been audited by Mr. Trigger, and would appear in the balance-sheet at the end of the year.

The PRESIDENT moved that they be paid.

Mr. GOLD seconded the motion, which was carried.

The Proposed Midland University.

Mr. TAYLOR said he should esteem it a favour if he were permitted to move the following resolution :—

> That the authorities in connection with the formation of a new Midland University in this city (Birmingham) be approached by this association with a view to our profession being recognised in some way on its educational board, either by the foundation of one or more veterinary chairs with a veterinary department, or [and he attached particular importance to this latter suggestion] by the permanent establishment of an agricultural department under veterinary supervision. in the university, or in some place conveniently appointed in connection therewith.

He laid that resolution before the members of this association merely as a suggestion, and, whilst inviting discussion upon it, he relied upon their support for giving practical effect to it. He should also have to enlist the special sympathy of their treasurer when he came to ask for a subscription from this association to the funds of the university formation scheme.

Mr. BLAKEWAY (the hon. treasurer) said the matter had been somewhat sprung upon him. They had not much money in hand, and if the members contemplated going in a body to Baden-Baden, there would be none. He should like to know something about the amount it was proposed to vote.

Mr. TAYLOR said he was prepared to leave that to the generosity of the members.

The PRESIDENT said that a resolution involving the expenditure of any money was out of order, as the rules required notice to be given. He would suggest that Mr. Taylor put his resolution upon the circular for the next meeting.

Mr. TAYLOR agreed to do so, whereupon the subject dropped.

SOME DISEASES ASSOCIATED WITH FISTULÆ.

BY W. H. BROOKE, M.R.C.V.S.

Mr. President and Gentlemen,—I feel that my position before you to-day as essayist calls for an apology. When I look back upon the list of distinguished members of our profession who have occupied my place, I feel no small amount of apprehension that my little light may be totally obscured by their brilliance. I must therefore ask you to bear with me. When necessary I trust I shall be ready, as far as my abilities will allow, to contribute my quota for discussion. I must plead that my position is not of my own choosing, a circumstance which increases my desire that when I reach my conclusion you may not think that your time and attention had been altogether mis-spent. I have of late been rather busy, and the time which I have been able to devote to preparation has been very limited indeed.

What I propose bringing under your notice to-day is the subject of fistulous wounds, or to speak more correctly, fistulous surgical wounds—troublesome complications of what at first often appear to be slight injuries, and especially those affecting the regions of poll, withers, and foot. Having of late had several cases of this nature which have caused no small amount of anxiety both to myself and clients, I thought that I could not do better than

relate to you some of my experiences, although to many of our members they are probably matters of every-day occurrence. However correct and scientific the principles brought to bear upon them may be, they often present problems which are by no means easy of solution, and our line of treatment is rendered anything but distinct.

I may define a fistula as a channel leading from a diseased centre to other parts, established by suppuration around the diseased tissue which burrows in the direction of least resistance; or it may arise from movement of the walls of an abscess upon one another, preventing union of granulations. Pus may extend along tracks of cellular tissue, and occasionally follows the course of veins and other structures.

The cause is in most instances of a traumatic nature. In poll evil from badly-fitting and cumbersome bridles, or from bruising of the poll by violently striking the part against the lintel of an open stable door, from being startled whilst picking up food beneath a manger, blows from heavy riding whips, and violence inflicted upon the part in a variety of ways. Fistula of the withers originates in injuries from badly-fitting saddles, broken saddle trees, bad riding (especially in the case of a lady rider), from a loose saddle, or from the animals rushing under low apertures bringing about bruising of the crest and sides of the withers. Quittor—the fistulous condition of the coronet—is induced by treads, overreaches, suppurating corns, and bruises inflicted by various other means.

Pathology.—Most fistulæ which come under our notice, have their origin in diseased tissue—bone, ligament, or cartilage, and necrosis generally exists. The disease process extends over a varying period of time, according as the injury in which it originates has been more or less severe, or from structural peculiarity. In the case of poll evil and fistulous withers, the fistula arises from diseased nuchal or superspinous ligament or bone. After reception of injury, an inflammatory process is set up in the parts, more or less deep according to the degree of injury, and all the various stages of inflammation are found arranged concentrically to the necrosed parts. Exudate, rich in cells and broken down tissue, is formed round the centre in which vitality is extinct, and eventually completely circumscribes the necrosed part and forms a channel for its escape generally to the surface of the body, and a burrowing is so effected which constitutes the fistula. In the case of separation of bone sequestra the pus acts mechanically, and according to some authorities the acid constituents of the fluid have a solvent action upon the otherwise insoluble bone salts, assisting the process in a chemical manner. In the regions of the poll and withers, according to Möller, are found synovial bursæ which provide for a free movement of the muscles of the part, which on the reception of an injury become distended with exudate, and constitute the primary swelling in the respective diseases. The inter-muscular connective tissue of the flat layers of the poll and withers favours burrowing of the pus in many directions; and in the worst cases of these troublesome diseases we often get channels ramifying in a multitude of directions—a condition which considerably complicates treatment. In the poll the channels are burrowed along the inter-muscular layers of the splenius complexi and oblique and straight muscles of the head, and along the course of the nuchal ligament. In the withers a similar condition is seen in the worst cases of vertebral necrosis, following down the course of the dorsal spines, and causing accumulations of pus down even to the laminal plates and into the subscapular region.

Symptoms.—In the earlier stages it is not often that the veterinary surgeons's aid is called into request, the owner or horsekeeper looking upon the injuries as being of a trivial nature and quite within the scope of his own treatment. In poll evil we generally have presented a fluctuating swelling, and in many instances the conditions are even in a more advanced stage,

presenting a hard enlargement, on the surface of which one or more openings are seen, and from which a purulent discharge issues. The fluctuating swelling is found to contain a thick creamy material consisting of pus and necrosed tissue. Should the process be more advanced the greater quantity of pus has found exit through natural orifices, these are found to lead indirectly through the abscess cavity, or directly to the necrosed centres. The foregoing remarks apply equally to poll evil and fistulous withers. The parts around are stiff and sore, and considerable distension of lymphatic vessels is noticeable. The pain, if the disease is of some weeks standing, may have caused considerable falling off in flesh, but as a rule the animal suffers little constitutionally. I think that I need say no more as to the pathology and symptoms of these diseases. Their diagnosis calls for no special skill, and their nature is generally only too painfully apparent, and I will proceed to discuss the treatment, which often presents a problem which we find a very considerable amount of difficulty in solving.

Treatment.—Our line of action is perfectly clear, but often very difficult of execution. Free exit should be given for escape of accumulated purulent collection, all sinuses and ramifications opened to their utmost so as to enable dead tissue to escape, and when possible the diseased tissue itself should be removed. It is here that we meet with our chief difficulty, this being the only radical means of cure in this class of diseases, particularly when bony tissue is involved. Let us first consider poll evil, which occurs in three varieties, viz., simple abscess, abscess complicated with diseased nuchal and superspinous ligament, and a similar condition associated with necrosis of the spine of the dentata or wing of the atlas.

I have recently had a case of the simple variety in which a broken abscess cavity was shown, still discharging and forming the centre of about five square inches of swelling, caused by injury from a bridle. I probed all parts of the wound, but failed to detect fistula. The treatment consisted of warm fomentations, to which a little "Jeyes'" was added, sedative lotion to swollen parts, and a dressing consisting of NaCl 2 with a little pure carbolic acid and glycerine. By the end of ten or twelve days a decided improvement was noticeable; and by means of a couple of felt pads and an extra layer of leather inserted between them, pressure and chafing was prevented, and the animal sent to work. It has since completely healed, and left scarce a trace of former trouble.

When the nuchal ligament is involved we find the inflammatory swelling traversed by fistula; and when the diseased parts are exposed they present a dull, shreddy appearance, and have lost their firmness. In such cases sinuses should be opened up, all diseased tissue removed, and the usual antiseptic measures adopted. Treatment of cases of vertebral necrosis is accompanied by a good deal of difficulty. We open up sinuses, and gradually get to the seat of the mischief; but when we can feel the bone with probe or finger, on account of the depth of tissue through which we have to feel our way and the accompanying bleeding, it is in many instances all but impossible to gauge the exact extent of the disease.

A case which I had about a year ago in which there was necrosis of the wing of the atlas presented these difficulties. When first brought to me the animal had been recently purchased, and had a large swelling on the near side of the poll, on the surface of which were several old seams, very suggestive of a previous attack of the disease. I opened the cavity, from which a large quantity of pus was obtained, and found beneath it several fistulæ, which also I laid open. After about a fortnight's treatment with injections of $NaCl_2$ or $HgCl_2$, previous to which the wound had been thoroughly cleansed with warm water and Jeyes', the part being afterwards packed with tow soaked in the dressing or with oil of eucalyptus,

and the outside wound dusted over with boracic acid, a small quantity of discharge still persisted, and on a further opening up of a sinus forward I discovered by means of the probe a roughened surface of bone. I enlarged the opening so that I could reach it, and by means of a curette which I directed and controlled with my finger. I gave the diseased surface an occasional scraping. At the expiration of about eight weeks there was still an issue of about a drachm of pus in the course of the day, and the owner about that time having an offer of purchase accepted it, and so I lost sight of the case. As near as I could judge the diseased bone was situate at the back part of the wing of the atlas at about half an inch from its margin.

I think there is no specific distinction between this disease and fistulous withers, and one protracted but eventually successful case of the latter disease I would like to cite, but before I commence its description I must acknowledge the kindly help which I received from our president, who, especially in the earlier part of the time during which the case was in hand, gave me valuable assistance when I was all but incapacitated by an accident. I must thank him for the interest with which he was good enough to watch the progress of the case. The subject was a valuable bay hack, which, a month before my services were called into requisition, had been ridden with a loose saddle by a lady, with the result that on her return after a long run the withers on the off-side were found to be very sore and soon after the saddle had been removed began to swell. This, according to the coachman's account, who at first regarded it as an ordinary sore back, soon subsided, but a sore place was left from which a small amount of pus escaped, and it was in this condition when, in a month afterwards, it came under my notice. I inserted the probe and found that it took a forward direction for about two inches. This I opened, as I did other small fistulæ as they made their appearance, and for a little over a month the case bid fair soon to come to a satisfactory termination, but the discharge again increased, and the probe when inserted passed forward to the extent of about six inches. When it reached the extremity of the sinus, the point was cut down upon and a seton inserted extending from the original orifice to the newly made incision. A day or two subsequent to this operation a fistula was discovered leading from the new incision through the inflammatory tissue to the summit of a dorsal spine, which gave to the touch an idea of sandy roughness. A few small particles were rubbed off the surface, but the main part of the bone was quite firm and unyielding. Thinking it probable that it was simply a superficial necrosis, the channel leading to the diseased bone was kept open, and I thought that the supposed superficially diseased tissue would escape in sandy particles. This, however, did not occur, and I had the horse brought to my stables for treatment. It had been under notice now for a little more than two months, and during the time the parts were treated with HgCl 2 and Na Cl 2 solutions of varying strength. New sinuses received a strong injection of one dram to the ounce of either drug, while older parts were simply treated with solutions of weaker strength. Pure carbolic acid and iodoform were also used in the course of the treatment, while boric acid was used as an outward dressing throughout the whole time. As little or no progress was being made after the animal had been with me a fortnight, I decided to place him in the brake and operate. Fifteen minims of 4 per cent. cocaine hydrochlorate solution were injected into three or four places along which I had decided to make the incision, my object being to expose the diseased bone and if possible remove it. The cocaine certainly did away with much of the pain which would otherwise have been felt, but the operation lasted considerably longer than it was calculated to exert its influence. I experienced much difficulty in getting at and removing the diseased pieces of bone through its being rather deeply

embedded in inflammatory tissue, and on account of its strong ligamentous attachments. I also removed a considerable quantity of diseased super-spinous ligament, but did not care to exert too much force upon the vertebral spine, thinking that by so doing I might further damage the healthy structures beneath; so the animal was removed from the brake after the parts had been syringed with a solution of NaCl 2, and packed with tow soaked in oil of eucalyptus.

To assist the separation of the sequestrum, it is very necessary to divide its ligamentous attachments, for the roughened surface which is felt before this is done, may only represent a small portion of the sequestral area, and as the lowly-organised fibrous tissue is very slow in undergoing disintegration as compared with the vascular bone, difficulty is often found in removing the bone after its separation from the main shaft, from the ligaments to which it is attached, especially when the ext .nal opening through which it is effected, is a small one. Sir. Wm. McCormack states that the time occupied in separation of a sequestrum varies from three to six months. The period from the reception of the injury to removal of the first piece of bone in this instance, extended over about four months.

After this operation, the discharge grew less than previously, although still rather profuse. Twice a day the parts over which the discharge had run were cleansed with a small brush, carbolic soap and warm water, dried, and dressed over with benzoated zinc ointment, the wound syringed with a 6 or 8 gr. to the 1 oz. solution of either HgCl or NaCl, a pledget of tow with oil of eucalyptus, and a little iodoform inserted, and the whole surface wound filled with boric acid powder. In the course of about a fortnight, during which time several small pieces of bone had been removed, a fair-sized piece of the dorsal spine around which I had worked with a scalpel, began to loosen, and with the aid of a curette, I was able to remove it bodily, and now thought that I had got to the end of my trouble.

The discharge grew less and less for close upon three weeks, and all appeared to be going on well, when at about the end of that period it again began to increase, and the orifice of a fresh fistula was discovered, which was found to communicate with the next vertebra anterior to the one already operated on; another fistula led from the same point across to the near side of the withers, down which the probe could be passed for 10 inches. This was a most discouraging state of affairs, but a seton was passed through the last named, and it was found to be simply a subcutaneous burrowing. The course of disease in this bone was similar to that observed in the vertebra first affected.

At the end of about another three weeks the next vertebra in front was found to be showing signs of disease, and followed the course taken by the other two, and now what appeared at first to be a hopeless complication arose. Leading from the summit of the vertebra last affected was a fistula which ran parallel with the vertebral spine and down which the probe could be passed for nearly eight inches. The question arose as to whether the fistula originated in the diseased spinal summit as a centre, or whether there was necrosis of the laminal plates at the base, which event would have rendered the cases hopeless. Treatment was continued, and the case ultimately made a good recovery.

The injury was first received at the commencement of October, brought to me for treatment at the end of that month, and under notice in all for about seven months. As an average of nearly an inch had been removed from the summit of each spine some alteration in conformation would be expected, and instead of the parts coming to a sharp crest, for a space of about five inches a depressed and slightly infolded condition can be seen. It was an opportunity which I had of watching one of the worst

cases of this class of disease through to its termination. I found it, although a very worrying affair, yet at the same time very interesting, and I hope that I have not overwearied you in its narration. I was careful in the use of the probe at the outset, and consider that the short primary sinuses only communicated with superficially diseased soft structures; that the disease of the bone was gradual, and that necrosis did not take place for a considerable time after the reception of the injury, and that the succeeding disease of the other two vertebræ anteriorly situated was the result of their being further removed from the irritant, viz., the loose saddle, which would have inflicted a continued series of severe bruises in the course of a prolonged gallop to which my client admitted the horse had been subjected. Although a valuable animal, the owner was several times during the progress of the case disposed to have him slaughtered, and though I was, from a monetary point of view, decidedly the loser, the advantage of being able to watch a case of so severe a nature through to a successful termination quite compensated in the experience it gave in its course, and the satisfaction which it afforded at its completion, for the trouble and anxiety through which it had led me.

The title of my essay being a general one, it would be scarcely complete without some notice of quittor, and as a case which I had a few months back included most of the conditions commonly met with in this variety of fistula, I will offer a few remarks upon it. It originated in an over-reach while the horse was in the stable under treatment for sitfast, and he became very lame indeed. The character of the lameness pointed to the foot, but with the exception of a tenderness at the outer heel, there was nothing to account for it. A poultice was applied, and in a few days the part commenced to swell and a discharge to ooze from the junction of the skin and horn; the latter was removed, and in the course of a week or ten days, being under-run, the greater part of the horn covering the heel both of wall and sole was taken away. A little pus continued to issue from the sensitive tissue of the bar, and a swelling soon afterwards appeared upon the skin about the outer heel, which was opened. A passage communicating between this and the discharging point upon the sensitive bar was established, and for some time the case did well, but a second bruising of the heel from another over-reach produced an abscess further forward than the first, which for some time discharged copiously. A director was inserted, and the fistula which now ran deep down into the foot was enlarged to the extent of a little more than two inches, and a solution of $HgCl_2$, 20 grs. to 1 ounce, injected by means of a quittor syringe. Actual cautery and $HgCl_2$ capsule were afterwards used, but with only partial success, and the horse being one which it was proposed shortly to cast, and a customer another client of mine being found willing to purchase, the horse changed hands. I supplied dressing consisting of $NaCl_2$, 6 grs. to 1 ounce combined with which was a little pure carbolic acid, and in the course of a fortnight the discharge stopped, a blister was applied, and after about twelve weeks from the commencement the parts settled into something like a normal state.

The extended period over which the case lasted would be accounted for by the repeated bruising which in the second instance affected the lateral cartilage. The case in its details presents nothing beyond the ordinary with the exception of its double tediousness, but is sufficiently typical of this variety of fistulous disease.

In conclusion, gentlemen, let me thank you for the kind attention you have given me. The subjects upon which I have touched must be familiar to all, and I hope to add considerably to my knowledge by the discussion which I trust these notes will provoke.

(*To be continued.*)

IRISH CENTRAL VETERINARY ASSOCIATION.

A MEETING of the association was held at the Queen's Arms Hotel, Dundalk, on the 1st of July, 1898. The following were present: Messrs. D. Fulton, Mullingar, president, in the chair; W. A. Bryne, Roscommon; M. J. Cleary, Mullingar; S. Martin, Enniskillen; Thos. J. Nolan, Ardee; J. Dawson, Cavan; A. Watson, hon. sec. and treasurer, Dublin.

The minutes of the previous meeting were read and duly signed.

A discussion arose *re* the Health Conference to be held in Dublin in August.

THE TUBERCULOSIS COMMISSION.

BY M. J. CLEARY, M.R.C.V.S., MULLINGAR.

Mr. Chairman and Gentlemen,—It is not an easy matter to select a subject which, from the experience acquired in the practice of our profession, one can garnish with such an amount of novelty as will make it palatable to an audience of his own *confrères*. In taking tuberculosis for my theme, I do so not with the intention of telling you anything new, or enshrouding it with a garb in which heretofore you have never beheld it, but solely on account of the subject being now a common topic for conversation in which everyone seems to join.

The large amount of public attention which this matter has received during recent years resulted in the appointment of two Royal Commissions to inquire into it. The report of the first commission is now ancient history. It extended its operations over five years, spent three times the amount of money that was originally allotted to it, and wound up its deliberations by disclosing the not very startling or novel fact "that tuberculosis is in the opinion of the said commission a contagious disease." It may have put forth some further revelations which have since escaped my memory. Needless to say, this report was received with dissatisfaction, as it did not throw any light on the point about which most people were anxious, viz., the transmissibility of tuberculosis from animals to man through the use of meat or milk, nor inform the scientific world of anything it was not already aware of. With a view to solve the question of transmission, the second Royal Commission was appointed, and as this body has within the past few weeks presented to Parliament the minutes of the evidence elicited by it, I thought I could not do better than draw your attention to them.

Some fifty witnesses were examined, comprising medical officers of health, veterinary surgeons, representatives of the Local Government Board, and Board of Agriculture, farmers, butchers, dairymen, and other representatives of sundry allied interests. As I felt somewhat acutely the tax on my patience occasioned by wading through the lengthened chain of evidence comprised in the report, I will here refrain from epitomising in detail the several opinions given before the commission, and confine myself to considering the matter as a whole, while drawing especial attention to the views of the more prominent witnesses.

A small proportion of the medical and veterinary authorities vouchsafed opinions on the transmissibility of tuberculosis from the lower animals to man through the instrumentality of meat and milk.

Sir Charles Cameron, Medical Officer of Health for Dublin, believes that there is a danger of infection attached to the use of meat or milk of diseased animals, but while he admits that the risk attendant on the use of the latter is much more serious than on the use of the former, he holds that a very small percentage of human beings affected with tuberculosis have contracted

the malady from either source, and if he were asked to assign a cause for the great mortality consequent on this disease, he would throw the blame on improper feeding, overcrowding, and poverty.

Dr. Chalmers, one of the medical officers of health for Glasgow, while attributing the reduction of deaths from tuberculosis in that city to the better housing of the poor, also admits that accompanying that happy change there has been enforced a more rigorous milk and meat inspection. Private slaughterhouses have been prohibited, and public abattoirs erected in their place. No milk can be offered for sale in the city which has not been taken from a cow certified free from disease.

Professor McFadyean considers that taking the question of tuberculosis as a whole in so far as it is identified with the lower animals, the use of either meat or milk is a rare source of infection to human beings. Meat, in his opinion, seldom acts as a conveyance of disease germs, and even if it happened to be so polluted, cooking would be bound to render it innocuous. He is of opinion that not more than ten people in the entire country become annually inoculated through the use of meat, in fact, he doubts if there is one. More danger should be apprehended in the case of milk. He does not believe that milk taken from a cow with tuberculosis of the lungs, etc., would be a source of disease, but that taken from a diseased udder should not be used, as it is bound to contain infection. He has himself detected tubercle bacilli in a sample of milk submitted to him for examination. Infected milk sufficiently diluted or mixed with other milk taken from a healthy udder may be rendered harmless, but would recommend a much better precaution in connection with it, viz., boil or steam it. He would suggest that all cows with diseased udders be eliminated.

Mr. Clement Stephenson, F.R.C.V.S., is of opinion that tuberculosis is often transmitted from man to cattle, and so long as the disease remains in man, he must ever remain a source of infection to cattle.

Dr. Tatham, the Superintendent of Statistics, Registrar General's office, says that the increased consumption of meat by people between the ages of five and 35, during which period of their lives phthisis is apt to attack them, has not resulted in a corresponding increase in this disease, and that the same conclusions can be drawn from children under five years as regarding the use of milk.

While most of the veterinary and medical witnesses deferred from giving an opinion regarding the actual transmission of disease from the lower animals to man, they all agreed that a rigorous and persistent inspection of meat and milk should be put in force, with a view of lessening the danger of infection, if not entirely stamping out the disease.

To the question of inspection the butcher and dairy representatives seemed to agree, but were not at all certain that the putting in practice of such a scheme would not inflict on them trouble and losses.

The necessary qualifications for an inspectorship brought forth some difference of opinion. In years gone by veterinary surgeons were generally appointed to the positions "of dairy inspectorships, but the *locus standi*" of this office seems to have undergone material retrogressive metamorphosis, for one now finds ex-policemen, broken-down butchers, half-pay army men, and other attenuated specimens of the human race voted into those situations by our deep-thinking and economic local boards.

Taking the witnesses as a whole, they are in favour of having veterinary surgeons for meat and dairy inspectors.

Professor MacFadyean "goes one further," as shown in his examination by Professor Brown, from the minutes of which I take the following extract :—

1326. (PROFESSOR BROWN.) One witness told us that in his opinion whether a meat inspector were a doctor or a butcher or a veterinary surgeon, he ought to have some

special training before he could be considered to be competent to inspect meat: would you agree with that proposition?—I should think it was superfluous in the case of a veterinary surgeon at any rate, because he already gets the training which, above any other that he is likely to subject himself to, fits him for meat inspection.

1327. Do you mean that all veterinary surgeons have that claim?—Yes, under regulations introduced by the Royal College of Veterinary Surgeons three years ago, no person can get his diploma who has not been specially taught and specially examined on meat inspection.

1328. But that only applies to the men who are studying under that system, not to the veterinary surgeons of former times?—No, not to those who passed before.

1329. That is what I meant; then it does not follow that because a man is a veterinary surgeon, therefore he is competent to be a meat inspector?—No, it does not follow if you take anyone possessing a veterinary diploma. But at the same time I am strongly of opinion that no man who has not had a veterinary training is competent to act as a meat inspector. Meat inspection is simply a search for the lesions of particular diseases of the lower animals, and the only man who is competent to give an opinion as to whether these diseases are present or not is a veterinary surgeon.

1330. What is the kind of training that is given now at the Royal Veterinary College? They get a theoretical course of lectures on every disease of the lower animals that is communicable to man, indeed, I may say that they get a very full course of lectures dealing with the pathology, the naked-eye appearance, and the microscopic structure of all sorts of lesions in cattle or other domestic animals. Not only that, but they are all taught the application of modern methods to the diagnosis of those diseases, such as the use of the microscope, and the identification of the germs which are the cause of the various diseases.

1331. Do they get any practical teaching in regard to meat inspection in general?—They get it in this way. There is hardly a day at the London Veterinary College that specimens are not sent, sometimes a considerable number of them, from veterinary surgeons in all parts of the country, of diseases of one sort or another, usually sent for diagnosis by me. These are invariably used to teach the class as to what the appearances of these particular diseases are. In addition to that each man will get a series of demonstrations in a slaughterhouse.

1332. And the opportunities have been extended to the enormous number of animals which have been experimented upon at the Royal Veterinary College for the purpose of the former commission, and for various other purposes?—Yes, I feel sure there is no place where greater facilities are afforded than are afforded there; and, what is more, I feel sure that the facilities which are available are quite sufficient to ground a man in meat inspection.

The only inference one can draw from this extract is that only those who have obtained their diploma within the past three years are warranted to perform the duties of a meat inspector. The professor gives in detail the circumstances which fit them for this task, such as examination of morbid specimens, diagnosing by aid of the microscope, and constant visiting to slaughterhouses. All those factors existed previous to the past three years, and I cannot see what recent developments in their use have since then been introduced which so materially enhances the worth of the latter-day veterinary surgeon as to fit him for a single post to the exclusion of a senior *confrère*. Had I been a graduate at the Dick College when Professor McFadyean lectured there, I would now smart under the reflection which his evidence before the Royal Commission must cast on me, and recognising that my veterinary existence was to a large extent generated by a father who now rejects me for an offspring of more recent birth, I could look on myself in no other light than that of the bastard issue of an art to whose following I was wont to claim legitimate heirship.

Almost all the witnesses who gave evidence on the present manner after which meat inspection is carried out complain of a want of uniformity of action on the part of inspectors. This grievance inflicts losses on butchers and cattle traders. They tell us that carcases which pass inspection in one place are rejected as unfit for human food in other places. The casual observer could expect no other result, as a want of uniformity in inspectors must of necessity give rise to an analogous discrepancy in inspections. Moreover

it is only quite recently that veterinary and medical experts have come to anything like definite conclusions as to what classes of tuberculous carcases are fit or unfit for consumption. The evidence before the commission goes to show that by far the greater portion of tuberculous meat is fit for food, and that it is only the cases of general tuberculosis that forfeiture of an entire carcase should be decided on.

On the question of inspection hinged the institution of public abattoirs, and the compulsory closing of private slaughter-houses in cities. Some butchers were entirely opposed to the relegations of private slaughter-houses, maintaining that such a course would lean heavily upon the poor, and give an increased impetus to the trade in foreign meat to the detriment of home produce; while others of this class would consent to the use of public abattoirs, but would expect compensation for the losses sustained by having to discontinue using the private ones.

The medical and veterinary witnesses were all in favour of the compulsory use of public abattoirs in large cities.

The advisability of compensating for carcases seized as unfit for food was dealt with by the commission.

The majority of the witnesses were in favour of compensation, but much variance of opinion existed as to the circumstances under which it should be given. Some would not compensate for the carcases of cows, holding that the butcher who buys a cow knows full well that she is more likely to be tuberculous than other classes of cattle, and cognizant of this risk previous to purchasing, he should bear in full any losses which may follow. In other words, the price of cows ought to be regulated to meet the extra risks attendant on them. Other witnesses would compensate in cases where the owners of diseased carcases voluntarily reported such to the inspector; while a third section of the witnesses would only give compensation in cases where the value of the beast was over a certain sum, which ranged between £8 and £12. They maintain, and very justly so, that the giving of compensation for carcases of little worth would put a sort of premium on inferior meat, and lead to a travesty of the law by courting illicit trading in it.

Mutual insurance of live stock was hinted at, but received little or no favour at the hands of the witnesses. This idea, if put in practice, would afford governmental authorities an "admirable get out" on the very vexed question of compensation, but is it not both unreasonable and unfair to ask any section of society to institute a scheme of mutual protection amongst themselves to cover or rather palliate losses which they are called on to sustain for the good of the public.

The eradication of tuberculosis in the lower animals formed one of the principal points about which the commission sought information. The widespread prevalence of this disease in man and the lower animals, suggested to the commission the propriety of calling before them representatives of those State departments which have to do with the health of both man and live stock. The Assistant Secretary to the Local Government Board gave a detailed account of the methods of procedure adopted by that body under the provisions of the Public Health Act, and other statutes of a like nature. To the part of Mr. Thomas Henry Elliott, Secretary to the Board of Agriculture, lay the not very trivial duty of explaining the attitude of the above Board on the question of stamping out tuberculosis. If this disease is to be stamped out in British and Irish live stock it must first be scheduled as a disease under the provisions of the Contagious Diseases (Animals) Act.

On being queried to state the general views of the Board of Agriculture on the necessity for attempting to stamp out tuberculosis Mr. Elliott replied, "I think I should say that even if the adoption of stamping out were necessary it would not be possible, and that if it were possible it would not be neces-

sary." He then went on to state the difficulties which would stand in the way of a stamping out process. The first to contend with is notification. In many instances a beast may be tuberculous without exhibiting any external symptoms, even to the eye of an expert observer, while the likeness of the affection to other complaints must make stockowners confound it with other diseases, and give rise to a large number of reports of tuberculosis where no such disease is in question.

Bearing in mind that the report which Professor McFadyean submitted to the Royal Commission of 1890, pointed out that "ordinary clinical examination is almost valueless for the detection of tuberculosis in its early stages," what an enormous number of cattle would have to be slaughtered in order to insure the destruction of those cases which preclude diagnosis while the animals are alive. It is impossible to obtain an estimate of the probable cost of a scheme of stamping out by means of slaughter, same as was adopted when dealing with pleuro-pneumonia, but we are safe in concluding that it would be something enormous—more than Her Majesty's Government would warrant, or stockowners be prepared to bear. Even admitting that tuberculin is a reliable means of diagnosis, and its employment for that purpose would obviate the expense of slaughtering healthy cattle, the stamping out by means of slaughter would not commend itself. Gauged at the rate of two shillings per head, it would cost £635,000 to test all the cattle in Great Britain, and £436,000 all the cattle in Ireland. As there is no precedent for the payment in full of a beast found to be diseased, and bearing in mind that at least 20 per cent. of dairy cows are so affected, if all the tuberculous cows in Great Britain and Ireland were to be slaughtered and their owners compensated for them with half price, while admitting that each cow is worth the average of £15, it would cost the cow owners of Great Britain £4,000,000, and those of Ireland something over £2,000,000 for the carrying out of such a scheme.

A method of wholesale slaughter, even if borne entirely by the State, must to a large extent place a goodly proportion of our dairying business in the hands of the foreigner, and so raise the price of stock for some years to come as to make it impossible for British and Irish feeders to compete with foreign meat in the English markets.

Waiving the adoption of a scheme on those lines, it has been suggested that isolation, if efficiently carried out, would prove an effective alternative to more drastic measures. The Board of Agriculture thinks this suggestion would turn out a practical failure. They maintain that an army of inspectors would be required for the purpose, and the fact of animals having been isolated or having responded to the tuberculin test would so reduce their value in the markets that a serious loss would be inflicted on their owners; however, it is doubtful if consumers would agree to such a course being taken by the Government, and murmurs were bound to be forthcoming against the practice of legalising the sale of meat which the authorities knew was taken from a diseased animal. The Board of Agriculture is satisfied that if it is proved that tuberculosis is regularly transmitted from animals to men, they would be ready and willing to take some action in the matter, but when they reflect that with a decline in the number of deaths from this disease in man there has been an increase in the amount of meat and milk consumed, they are of opinion that the lower animals hardly form an important centre of infection to humanity.

Gentlemen, I will not direct your attention further to the evidence deduced by the Commission. Possibly I have touched on all the cogent points connected with the disease in so far as its transmissibility from the lower animals to man, and its stamping out, are concerned. The veterinary profession must feel grateful to those gentlemen, scientific and otherwise, who unfolded

"their extensive knowledge" before the Commission. Compared with many of them I feel myself in a state of practical ignorance in this respect. Whether I should attribute my insufficiency to an inability on my part for observing the pathological symptoms of a disease which must daily come under my view—for we are told that tuberculosis attacks twenty per cent. at least of our dairy cows—or deny so decided a prevalence of the affection, I am at a loss to decide. As you may naturally suspect, I will adopt the latter alternative.

Speaking of the live stock of Westmeath and the adjoining counties, I do not believe tuberculosis attacks twenty per cent. of their numbers, whether dairy cows or otherwise, and if I were asked to give an opinion as to the prevalence of the affection in the above area, I would limit the number of its victims to one per cent., and would not be surprised if subsequent experiments or statistics showed this calculation to be over the mark. I am a farmer's son, and have been reared on a farm which was entirely devoted to the raising of stock. My enlistment in the veterinary profession has proved insufficient to alienate me from the avocation in which I was born, for whether I like it, or otherwise, I find myself still a farmer, having to pay rent twice each year, "whether I have it or not." I have a vivid recollection of all the sick cattle which were on this particular farm for the past 20 years (during 12 of which I have been practising as a veterinary surgeon), and, except in young calves, I do not remember more than four cattle which I would say suffered from tuberculosis, and it may be suggested that there might during that period have been numerous cases of tubercle on the farm which escaped my attention, but if the truth of such a suggestion be admitted, it must force us to conclude that more than four cases should have so far developed as to present observable symptoms of the malady. In former years I have often noticed outbreaks of tuberculosis in young calves. When one calf was attacked, several others were bound to follow suit at different intervals. The greater number of those which exhibited aggravated symptoms died, while occasionally a bad case recovered, after having spent a year or two of its life as a "piner." In such instances I do not mean to infer that the animal got rid of the disease, but merely to point out that it rallied so far as to admit of its becoming fit for the butcher.

I have, moreover, observed that the advent of tuberculosis in a herd of calves seldom identified itself with a calf which was born on the farm where it was being reared, but almost invariably commened its operations on an animal which had been introduced from other quarters. In connection with this circumstance it must be remarked that far more of our calves died from tuberculosis in years gone by, when it was customary for Irish breeders to import sucking calves from Great Britain, than at the present time, when this country is dependent on its own produce for the maintenance of its herds.

The major portion of the evidence given before the Royal Commission was grounded on experiences acquired in England. I daresay the deduced conclusions which tells us that a very large percentage of British live-stock is tuberculous is correct, but we should rebel against those conclusions being applied to Ireland. In so far as tuberculosis is concerned, our live-stock is comparatively healthy, and while it is admitted that cases of the disease do present themselves, I am satisfied that they would be far fewer only for our former trading continually with Great Britain.

My information on the transmissibility of tuberculosis from the lower animals to man is almost *nil*, as it is entirely comprised in a case where a herdman who was in charge of a highly infected herd of shorthorns for some years, contracted the disease.

It is doubtful if the necessity for scheduling tuberculosis under the Con-

tagious Diseases (Animals) Act has yet arrived. Much could be done towards checking and stamping out the affection by a proper system of meat and dairy inspection, and veterinary surgeons engaged in those pursuits could perform tne duties of th-ir offices under the provisions of the Public Health Act, as efficiently as under those of any other statute. The promulgation of such a scheme would have the salutary effect of relieving medical officers of heal'h of duties which their diploma no more intended them to perform, than does veterinary membership entail the practising of any branch of the medical art.

I will not trouble you by referring to the question of compensation. It is scarcely a subject which calls for our intervention. which at the present time should appear superfluous, for the agriculturists and meat traders seem well fit to take care of their own interests.

A debate followed, in which Messrs. Watson, Byrne, Martin, and Nolan joined.

The proceedings then terminated.

1898.—LEGISLATIVE ASSEMBLY.—NEW SOUTH WALES.

DEPARTMENT OF MINES AND AGRICULTURE.

(ANNUAL REPORT OF THE STOCK AND BRANDS BRANCH FOR THE YEAR 1897.)

The Under-Secretary for Mines and Agriculture to the Minister for Mines and Agriculture.

SIR,—I have the honour to submit the report of the Chief Inspector of Stock for the year 1897, which shows a decrease in both horses, cattle, and sheep, owing to the severe drought.

Inspectors' Work.

The inspections made by the staff number 45,116, exclusive of the inspections of Queensland cattle on the border—rather more than usual—which include horses, cattle, sheep, dogs, pigs, and inspection of pounds, commons, etc.; and in this work inspectors travelled an average of 4,158 miles each. Nearly 300 prosecutions took place under the different Acts, and 258 convictions were obtained.

Horses.

The number of horses in the colony, at 31st December last, was 466,813, being a decrease of 17,215 on the previous year.

No serious outbreaks of disease have taken place. Blindness in horses again made its appearance in a few districts.

Cattle.

The cattle decreased during the year to the extent of 76,978, and now stand at 1,966,729.

Several districts report pleuro-pneumonia, and cases of tuberculosis have been met with in almost every district, and the cattle have been destroyed.

Tick Plague.

Unfortunately Ticks are making progress towards our border, having recently been discovered at Brisbane. Every effort is being made to protect our colony.

Sheep.

The returns show a decrease of 4,365,893 over the previous year.

The large decrease is, of course, due to the drought, as already stated.

A careful classification made of the different breeds shows the total number of merino to be 40,065,936, comprising 29,011,805 combing, and 11,054,131 clothing; long-wooled sheep number 1,223,580; while the total of English sheep and cross-breds is put down at 3,886,961.

Of all descriptions, the grand total at 31st December last was 43,952,897.

During the year 136 stud rams and ewes were imported from America and Germany, and passed the prescribed quarantine.

It will be seen that nearly the whole of the sheep are now paddocked, and that their condition is generally reported as improving.

The Lambing.

The actual lambing for the whole colony is estimated at 43 1-7th per cent. The spring lambing gave 67 1-5th per cent., and the autumn and winter lambing 35½ and 49 respectively.

The Clip.

3,725,278 lambs were shorn in the grease, and 192,224 washed; while 36,206,151 sheep were shorn in the grease. The wool of 2,306,097 was scoured.

The average weights of the clip are estimated as follows:—

	Lambs.	Sheep.
	lb. oz.	lb. oz.
Grease	1 15 ..	5 12½
Scoured	1 5 ..	3 4

The total clip for the colony is estimated at 224,281,646 lbs., being a decrease of 30,594,536 lb. on the year 1896.

Of the total mentioned, 186,407,749 lbs. are estimated to have been sent to Sydney, 29,760,856 lbs. to Melbourne, 7,957,082 lbs. to Adelaide, and 155,959 lbs. to Brisbane.

The sheep were comparatively very free from disease during the year. Outbreaks of anthrax still occur in several districts, but owners are inoculating with decided success, and the deaths from this deadly disease are decreasing.

It is very satisfactory to report that the whole of the colonies, including Tasmania and New Zealand, are now free from scab in sheep, Western Australia being the last to be free from that pest, and it is expected to be officially declared so at once.

Pigs.

The number of pigs in the colony is 207,738: a number very far short of what there ought to be.

Dogs.

Sixty dogs were quarantined during the year; but of these 36 were "ships' dogs," and only remained in quarantine until the ships to which they belonged left the port.

Travelling Stock Reserves.

Owing to the dry season many of these reserves were quite bare of grass; and, as the drought assumed serious proportions, travelling in many cases became impossible, and the sheep have perished.

The advisability of withdrawing the principal travelling stock reserves from lease is every day more apparent, and is a subject demanding early and serious consideration.

Registration of Horse and Cattle Brands.

About the average number of brands were registered during the year, and the total number registered since the Act came into force up to 31st December last was 78,203; and the number of sheep brands were as follows—fire-brands 5,539, tar-brands 21,099, and ear-marks 12,583.

Public Pounds.

There are 265 pounds now open, and these are periodically inspected.

Noxious Animals.

The receipts under the Pastures and Stock Protection Acts during 1897 reached £35,235 3s. 8d., while the amounts expended by the different Boards in the Colony for scalps of animals destroyed, and other expenses, amounted to £40,340 13s. 11d.

In only three districts were the full rates of assessment levied.

The number of the different animals destroyed, and paid for, is shown in Appendix M to this Report.

The Boards are still urging amendments in the Sheep, the Pastures and Stock Protection, and other Acts.

Among the Appendices, some interesting information is given by the Chief Inspector with regard to the Export Trade in Australian Mutton, Experiments in Cross-breeding, Defrosting of Meat, and the provisions of the proposed Amended Brands Bill are fully explained.

D. C. McLACHLAN,
Under-Secretary, Department of Mines and Agriculture.

The Chief Inspector of Stock to The Under Secretary for Mines and Agriculture.

Department of Mines and Agriculture, Stock and Brands, Sydney,
1st June, 1898.

Sir,—On the 2nd February last I submitted a Progress Report for the year ending 31st, December, 1897, giving the approximate number of the horses, cattle, and sheep then in the Colony; and I have now the honour to submit for your consideration my complete Report for that year on the working of this Branch, which is, as usual, based very much upon Inspectors' estimates, owners still showing very little inclination to furnish data. It will be seen that there is a very large decrease in the number of and descriptions of stock. This, of course, is attributable to the excessively severe drought from which almost every portion of the Colony suffered. There has been no such general drought for more than fifty years. With the exception of a comparatively small part of the north-eastern and north-western portions of the Colony and some portions of Monaro, no part of the Colony escaped. In the Eastern Land Division of the Colony the losses were greatest in the middle portion. In the Central Division the losses were very heavy, and they were greatest in the southern portion. In the Western Division the losses were very light in the northern portion, not very heavy in the middle, but very heavy in the southern.—I have, etc..

ALEX. BRUCE, *Chief Inspector of Stock.*

INSPECTION OF OFFICES.

During the year the Office of the Inspector of Stock at Gundagai was visited, and the books, etc., inspected.

Bi-monthly inspections were made by the District Inspectors along the Queensland Border where there are Acting Inspectors.

Inspectors' Work.

The colony is now divided into 65 sheep districts, and there are 52 staff inspectors employed, who have made the following inspections during the year 1897 :—

Stock, including horses, cattle, and sheep ..	24,659	inspections.
Reserves	5,778	,,
Public Pounds	483	,,
Commons	925	,,
Dogs	898	,,
Pigs	2,372	,,
Under Pastures and Stock Protection Act ..	6,839	,,
Under Public Watering-places Act	1,667	,,
Under Diseased Animals and Meat Act	1,495	,,
Total	45,116	,,

being an average of 867 inspections by each inspector.

The total number of stock inspected was—111,738 horses, 852,721 cattle, and 23,877,231 sheep. This shows a decrease of 13,220 horses and 156,803 cattle, and of 259,606 sheep inspected during 1897, as compared with the previous year. This is exclusive of the inspections made by the inspectors stationed along the Queensland Border.

Homebush Sale-yards.

As usual, the whole of the stock arriving at these yards were carefully inspected on each sale-day by an officer of the Board of Health and an inspector of stock, and a considerable number were condemned as unfit for human consumption. The numbers of stock submitted to auction were as follows :—

Cattle, 112,338 head ; sheep, 2,574,718 head—

a weekly average of 2,160 cattle and 49,514 sheep. Compared with 1896, this is an increase of 23 cattle and a decrease of 2,185 sheep per week. These inspections occasionally lead to the detection of stolen stock, as the inspector's duty requires him to compare the brands and marks on the stock with those in the permits and travelling-statements accompanying them, which are filed in this office for reference by persons inquiring about stock supposed to have been stolen, and the identification of the owners of animals condemned at the abattoirs. Some of the permits and travelling statements collected by the inspector at Flemington are still imperfect, especially as regards the brands and marks, and are useless in tracing stock or for production in a court of law. If, therefore, this continues, the inspector will prosecute for non-compliance with the Act and Regulations.

Diseases and Ailments of Horses.

Blindness in Horses.

From five districts horses to the number of 500 are reported as having been affected with blindness.

Mr. Veterinary-Surgeon Robinson, after investigating this ailment, came to the conclusion that it was caused by parasites, and prescribed accordingly. His prescriptions, when properly administered, proved successful, and as there has been a recurrence of the disease his prescriptions are given again.

Vermifuge.

Arsenic—5 grains, carefully mixed in (say) 3 lb. bran, and give 3 doses to each horse at intervals of one week between each dose—each horse to receive 5 grains in each dose; or

Turps and Linseed Oil	3 draughts for each horse at intervals of one week between each draught.	}	1 pint linseed oil. 2 ozs. turps.

Tonic.

To follow the vermifuge if the disease has been allowed to make considerable progress:—

Black antimony	2 drams.	1 dose.
Tartar emetic	1 dram.	
Sulphate of iron	3 drams.	
Common salt	½ oz.	
Powdered sulphur	½ „	

Dose to each horse at intervals of three days for three weeks, to be given in chaff or bran damped.

In the localities in which the horses are attacked, licks of salt and sulphur should be provided for them in troughs in the paddocks, and the horses could be enticed to the licks by a little bran and chaff.

Australian Stringhalt in Horses.

The horses in seven districts are reported as having been affected with this ailment during the year.

The majority of the horses, however, recovered when the spring set in.

Mr. Chief Veterinary-Inspector Stanley considers this a parasitical disease and is of opinion that the curative treatment is to expel the parasites by the administration of anthelmintics, and dose after dose may be required for this purpose. It is necessary to remember that brood after brood have to be poisoned; and that when they are ensconced in a living being, whose tissues are also liable to suffer from the introduction of drastic drugs, it is impossible to effect our object without perseverance; and to prevent reinfection it is advisable to move the patients to a sound paddock or, better still, into a yard or stable, to feed liberally, and also constantly supply salt with their food.

Preventive measures are very important. With this object, avoid putting an affected animal into a paddock at all favourable for the development of worms. Infected paddocks should not be used by horses, even temporarily; half an hour's grazing may effect them, especially during the spring and autumn. The first grass after summer will scour animals, and has been known to cure them, because at that season the parasites are prepared for exit. Microscopical examination shows one affected animal introduced, though he may be eventually cured, means later on (all circumstances being favourable), a hot-bed of infection for future tenants of the paddock.

Mr. Veterinary-Surgeon Robinson is of the same opinion as to the nature of the disease, and prescribes as an anthelmintic and tonic the following mixture, viz.:—

Common salt	2 lb.
Powdered sulphur	2 „
Black antimony	1 „
Tartar emetic	½ „
Sulphate of iron	1 „

Doses, divided into ounce-doses and given in the feed, which may be varied by the administration of a draught every alternate day, composed of linseed oil (raw) 1 pint and spirits of turpentine 2 oz.

Influenza.

This disease is reported to have affected the horses in two districts. For its character, symptoms, and treatment see Appendix B.

Ophthalmia.

This disease is only reported from one district during the year. Its nature, and treatment recommended by Mr. Chief Veterinary-Inspector Stanley, is described in Appendix C, and is applicable to all stock.

The skin disease (*prurigo*) is reported from one district; anthrax from one district; the bot fly from one district; ophthalmia from one district.

With the exception of the above ailments the horses throughout the colony have been exceptionally free from disease during the year.

Owners are cautioned, where their stock are not removed from the paddocks where poisoned pollard is laid for rabbits, that they should see that the pollard pellets are small, as both horses and sheep are liable to pick them up when laid large or in lumps.

The estimated losses in horses during the year from various causes, principally through drought, amount to 25,258.

Sheep.

Destruction of Wool by Tar and Paint Brands.

Buyers still complain of the destruction to wool by branding, but as yet it has been found impossible to find any pigment or other material for branding sheep which will be sufficiently legible and lasting and not damage the wool. As this is the case, the only course for owners to adopt is to put as few paint brands as possible on their sheep, and see that the branding is carefully done.

Diseases in Sheep.

Scab.—The flocks in this colony and in the colonies of Queensland, Victoria, South Australia, New Zealand and Tasmania are free from scab; and Western Australia may now also be considered clean, as no case of scab has been met with in that colony since May, 1895, and it is expected to be soon officially declared clean.

Anthrax.—This disease appears to be increasing, and owners are now availing themselves of the facilities offered for vaccinating their sheep, which has been the means of lessening the great mortality previously suffered by them. A statement (Appendix I.) is attached, showing the vaccinations made and the results.

At the request of the Council of advice inquiries have been made with a view to purchasing the secret of preparing Anthrax Vaccine, and placing it at the disposal of owners at a very reasonable cost; but so far the negotiations, which have been renewed, have not been successful.

The minister has also under consideration the expediency of placing a sum on the next estimates to provide the necessary salary for a bacteriologist for the department, who, in addition to preparing the virus of pleuro-pneumonia and the vaccine of anthrax and other diseases, would be prepared to investigate and report on outbreaks of diseases in cases where the veterinary authorities were in doubt.

Foot-rot.—Five districts report foot-rot among the sheep, but only to a slight extent, the past season not being favourable to its spread. Remedies for foot-rot will be found as Appendix J.

Fluke.—Owing to the dry season this disease also has been less prevalent than in previous years. The losses from fluke reported from thirteen districts amount to 44,300.

To prevent its spread, owners are again urged to free their land from surface water by running plough furrows where practicable and helping them with the spade. The preventives used by owners were salt, tar, and turps, sulphate of iron and Liverpool salt, and salt and sulphur.

Parasitic Worms.—Twelve districts report the sheep as having been infested with worms to the extent of about 4⅓ per cent.; in seven districts the sheep were infested with stomach, lung, and tape worms; five districts with stomach and tape worms; in one district with stomach and lung worms; and in two districts with stomach worms only.

The following results have been gathered regarding the efficacy of the various drenches and licks used for sheep for worms:—

Drenches.

Arsenic.—For the stomach and tape worms the arsenic and soda drench is still reported as the most effective, and has been by far the most generally used. It has, however, been recommeuded that potash, as being less severe on the lining of the stomach, should he substituted for soda in its preparation. The arsenic and soda drench is reported by several of the inspectors as having been also efficacious for lung worms. No authenticated information has been received of this drench affecting the health of the sheep or injuring the wool.

Turpentine.—Turpentine, with various mediums, has been very generally given for stomach, tape, and lung worms, with good results, when repeated.

Hayward's Specific is reported to have given satisfactory results where used.

Pottie's, Weaver's, and Walsh Bros.' Drenches are reported to have been used in a few districts with fairly satisfactory results.

H. C. Sutton's Drench is said to be, by persons using it, very good.

While it can be said that a decided improvement follows the administration of most of the drenches generally used, it is a fact that even in the case of the most effective the *post-mortem* examinations disclose that generally where the sheep are at all badly infested some worms are still alive; and this again, it is believed, arises from the owners delaying too long in drenching, and allowing the worms to have too great a hold on the sheep before they are drenched. The consequence is that some worms are left, which keep the sheep from thriving, and, with the introduction of fresh eggs from the water and pasture—if the weather is at all favourable for the development of the worms—in the course of a few months the sheep are as bad as they were before they were drenched. To make the cure effective, therefore, sheep which have been badly infested should, on receiving one drench, be kept as near the drenching yards as possible, and receive a second drench in the course of 12 or 14 days after the first.

But, while licks and drenches should be provided and given at as early a date and as often as required, owners should give their earnest attention to the removal of what may be termed the contributing causes of the pest by avoiding overstocking, attending to the proper nourishment of the lambs and weaners, burning off old pasture, and getting rid by draining of surface and stagnant water, as suggested in vol. ii., part 2, of the *Agricultural Gazette.*

A specific supplied by Mr. L. G. Jones for fluke and worms, strongly recommended by several owners, was carefully tested at Sutton Forest last year, but proved to be ineffective.

Licks.

It is reported that the following licks have been used with good results :—

Salt and Sulphur.	Salt, sulphate of iron, and Hayward's Specific.
Salt and sulphate of iron.	Salt, tar, and turpentine.
Salt and turpentine.	Pottie's Preventive Lick.
Salt, sulphate of iron, and turpentine.	Salt and lime.
Salt, sulphur, and sulphate of iron	Salt, sulphur, and lime.

It is scarcely necessary to point out that a lick, if it is efficacious in warding off an attack of worms, is far preferable to a drench; and as owners in all but the true saltbush country are now aware that it pays them well to give their sheep a liberal supply of salt, it would add very little to the trouble or expense to give once a month with the salt some of the other ingredients here mentioned which they found, from experience, was to any extent effective in protecting their sheep from the worm-pest.

The following further progress report of his investigations in regard to fluke and worms in sheep has been received from Dr. Cobb :—

Department of Mines and Agriculture, Sydney,

23rd April, 1898.

The results of the work in connection with the parasites of stock upon which I have been engaged in years past, and to which reference has previously been made in the Annual Reports of the Stock Branch, are now in course of publication in the *Agricultural Gazette* of New South Wales. About one hundred pages, with several hundred illustrations, having already appeared. I am sorry to say that some of the matter, which is of much practical interest, will have to suffer some further delay in order to put the result on a sound scientific basis, but this delay will not be protracted a day longer than necessary.

There is a good demand for the opening part of the chapter on the Sheep Fluke, which appeared in the *Gazette* for the month of March. It has been favourably received in many parts of the world.

The chapter on round-worms appeared in the *Gazette* for April, and has been issued in the hope of inaugurating an Australian school of experts in this important group of parasites.

N. A. COBB.

Sheath Disease in Wethers.

A considerable number of fresh outbreaks of this disease have been reported during the year.

Full particulars as to the nature of the disease, its treatment, and prevention, as furnished by Mr. Veterinary Surgeon W. Scott, will be found in my Annual Report for 1895, as Appendix H.

PIGS.

On 31st December, 1897, the number of pigs in the Colony stood at 207,738, being a decrease of 6,852 on the returns for the previous year.

Five thousand two hundred pigs were introduced by sea and land from the other Australian Colonies and England.

Six thousand three hundred and ninety-two pigs were exported during the year.

Twenty-two ships' pigs were killed on board, as the owners would not quarantine them.

The latest reports with respect to swine fever shows that there has been a decrease in the number of outbreaks in Great Britain and Ireland during the year 1897 as compared with previous years.

Dogs.

Twenty-four dogs which arrived from England and outside the Australian colonies passed through quarantine during the year.

Thirty-six "ships' dogs" were quarantined during the stay of vessels in port, and seven "ships' dogs" were destroyed.

All "ships' dogs" and other stock on board foreign vessels for the use of the passengers and crew are now quarantined during the stay of the vessel to which they belong in port, whether in Sydney or at Newcastle.

Four hundred and two colonial dogs were introduced at the Port of Sydney from the other colonies, and 304 dogs were inspected prior to exportation.

Diseases in Dogs.

Although rabies is reported as having decreased in the United Kingdom during the past year, the returns for that period are considered as anything but satisfactory.

APPENDIX B.—Influenza in Horses.

(BY E. STANLEY, F.R.C.V.S., GOVERNMENT VETERINARIAN.)

Character.

It is a contagious equine fever, due to germinal matter invading the system, producing disastrous changes in the blood, which interfere with nutrition, excite congestion, and occasionally inflammation of important organs or tissues.

The germs of this disease are always lurking about, and epidemics are due to exceptional climatic changes that have a lowering effect on the health of horses, and at the same time favour the vitality of the disease germs.

The worst cases are among hard-working horses in overcrowded sheds, with bad sanitary surroundings; next come fat horses; and the least susceptible are horses that are in good working condition, cleanly kept, and well cared for. If such have the disease at all, it is in a mild form, and they speedily recover.

Symptoms.

In the onset, loss of appetite, drowsy headache, pain in the limbs, general weakness; in many cases the eyelids are swollen, tears trickle down the face; there may be discharge from the nostrils, and occasionally coughing; the eye will be found scarlet and orange colour, the tongue furred, breath offensive, the heart beats feebly but quick, the pulse is small and weak, the dung is soft, and the urine high-coloured; there is a general rise of the bodily temperature.

As the disease progresses, the symptoms will depend on its course, which is very variable, as the numerous names given to the disease indicate. The vital forces in many cases overcome the toxic effects and excrete the poison from the system. It is to assist this process that we have recourse to treatment.

The Treatment.

This should consist of rest, pure air, shelter from sun, rain, or wind, bran mashes, and cut green food with drachm doses of chlorate of potash, carbonate of ammonia, or nitrate of potash given in the drinking water. If the case has been taken early enough, and the surroundings are good, the fever will abate, and recovery be complete in a very few days.

Unfortunately many horses are worked at the commencement of the illness; then they are completely knocked up, and they present a variety of bad

symptoms, owing to the mischief being located in individual organs, such as those of respiration, or the bowels, liver, spleen, lymphatic glands, or cerebro-spinal system. The location can only be diagnosed by the educated veterinarian, and every case should be treated to suit the nature and stage of the illness. Dropsical swellings are a favourable indication, but time and patience must be allowed for recovery. No case is cured until the horse is playful at exercise.

APPENDIX C.—Epizootic Ophthalmia.

Nature and Treatment.

This affection is usually seen in several cattle or sheep about the same time in various paddocks in the same district. However, as the majority recover, little notice is taken of the disease in the early stages; but that is just the time when proper treatment (if it were possible to apply it) would be of the greatest benefit.

It is in the acute stage, when the inflammation is severe, the animal being almost blind, that treatment is attempted. Now, at this particular stage much harm is done by injudicious treatment. Even yarding animals, unless done very carefully, will do more harm than good.

The eye is a very delicate, sensitive organ to deal with; therefore, nature is frequently the best restorer. She can be assisted by attending the animals comfort, having food and water accessible to the nearly blind animals, keeping them perfectly undisturbed and in shady places.

It may happen that the animal becomes nearly blind in one eye, the other recovering. In such cases the disease becomes chronic, the cornea covering the eye remains a milky-white colour. Proper treatment in this form is sometimes beneficial in clearing the eye.

For animals that can be handled, the following applications are recommended for the eyes:—

For the first stage of the disease, 1 oz. of tincture of opium, 1 pint of water; or 1 oz. of liquor plumbi subacetate, 1 oz. tincture of opium, 2 pints of water. These may be applied two or three times daily.

For the second stage after the acute inflammation has subsided, 1 part of boracic acid, 60 parts of water; or 40 grains of nitrate of silver, 1 pint of water. These may be applied two or three times a week.

In the chronic stages, finely powdered burnt alum may be blown on the eye once a week.

APPENDIX D.—The Tick Pest in Queensland.

Until comparatively recently it was believed that the tick pest was being kept well in check by the Queensland Government, and it was hoped that its progress towards the southern portions of Queensland and this colony would be long retarded if not completely stopped. Unfortunately this has not been the case, and the disease, instead of being confined to the country around Rockhampton, which is some 350 miles from our border, has made its appearance in a slaughter-house near the sale-yards in the neighbourhood of Brisbane, and again at Redbank Meat Works, some five miles east of Ipswich, which, in a direct line, are not more than 60 or 70 miles from our border.

On the discovery of the disease the chief inspector visited Brisbane with a view to the notification of the necessary quarantines, and the adoption of such other measures as were calculated to prevent the further progress of the disease; but he failed to come to an agreement with the stock department

Dogs.

Twenty-four dogs which arrived from England and outside the Australian colonies passed through quarantine during the year.

Thirty-six "ships' dogs" were quarantined during the stay of vessels in port, and seven "ships' dogs" were destroyed.

All "ships' dogs" and other stock on board foreign vessels for the use of the passengers and crew are now quarantined during the stay of the vessel to which they belong in port, whether in Sydney or at Newcastle.

Four hundred and two colonial dogs were introduced at the Port of Sydney from the other colonies, and 304 dogs were inspected prior to exportation.

Diseases in Dogs.

Although rabies is reported as having decreased in the United Kingdom during the past year, the returns for that period are considered as anything but satisfactory.

APPENDIX B.—Influenza in Horses.

(BY E. STANLEY, F.R.C.V.S., GOVERNMENT VETERINARIAN.)

Character.

It is a contagious equine fever, due to germinal matter invading the system, producing disastrous changes in the blood, which interfere with nutrition, excite congestion, and occasionally inflammation of important organs or tissues.

The germs of this disease are always lurking about, and epidemics are due to exceptional climatic changes that have a lowering effect on the health of horses, and at the same time favour the vitality of the disease germs.

The worst cases are among hard-working horses in overcrowded sheds, with bad sanitary surroundings; next come fat horses; and the least susceptible are horses that are in good working condition, cleanly kept, and well cared for. If such have the disease at all, it is in a mild form, and they speedily recover.

Symptoms.

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On the discovery of the disease the chief inspector visited Brisbane with a view to the notification of the necessary quarantines, and the adoption of such other measures as were calculated to prevent the further progress of the disease; but he failed to come to an agreement with the stock department

there as to the steps which should be adopted, and a like result has attended an Intercolonial Conference held recently at Brisbane by the Ministers for Agriculture of this colony, Victoria, and Queensland.

Negotiations are still proceeding, and it is hoped an arrangement will be arrived at under which the progress of the disease will be checked.

In view of the serious risk which the north-eastern portion of this colony is now running of the introduction of the disease, the following precautions have been taken by the department :—

1. All stock except horses in actual work and sheep have since been prohibited from entering this colony from that portion of Queensland lying north of the border from Tweed Heads to the 148th meridian and south of the conference line as altered by the Queensland proclamation of 29th April last.
2. Additional inspectors have been appointed, and are patrolling the border where the risk is greatest.
3. Boundary riders have been engaged to assist the border inspectors from Tweed Heads to the 148th meridian.
4. Contracts have been entered into, or called for the fencing of the border from White Swamp to Tweed Heads, a distance of 70 miles, and the necessary particulars in regard to the fencing of the border from White Swamp to Wallangarra are being obtained.
5. The erection of a double fence and buffer area is under consideration, but what is most urgent now is to get such a fence erected as will prevent stray stock from crossing the border, and assist the patrol in thoroughly maintaining the prohibition against Queensland stock. Should the pest unfortunately spread south of Brisbane, the second fence will be at once erected in the more dangerous portions of the border.
6. The district inspectors, as well as those appointed for the border duty, have been instructed to devote all the time they can to its protection, and to assist the border inspectors in their work.
7. The Inspector-General of Police has also issued instructions to the Force to assist in the enforcement of our proclamation.

Dipping.

Dipping for ticks in Queensland does not seem to have been so successful as it was at first thought it would be. To be effective—as dipping is with sheep scab—the medicaments used must contain some preventive agent to protect the cattle from reinfestment for a period exceeding the life of the larval ticks on the pastures, and such an agent has not yet been discovered. Still, it is said that dipping has been fairly successfully carried out by some owners in the St. Lawrence and Mackay districts.

Inoculation.

It is gratifying to note that the experiments with inoculation, conducted by Dr. Hunt in the north, and Mr. Pound in the south of Queensland, have been productive of good results. It is claimed for inoculation that it has placed beyond doubt the fact that the injection of blood from a recovered animal into susceptible, healthy cattle effectually protects them from the fever when placed in contact with infection ; and this is confirmed by reports recently received of the result of inoculation. It has been performed on a good many thousands of cattle in the Hughenden, Mackay, and Rockhampton districts, and not only are the results very encouraging as to the protection of the cattle, but with extended experience the losses from the operation have greatly diminished.

While, however, this is the case, the question as to the effect, if any, of inoculation on the quantity and quality of the milk of dairy cattle which has been inoculated, or on the quality and keeping properties of butter and cheese, has not been thoroughly and scientifically tested, as it was agreed at the Intercolonial Stock Conference it should be. The test is now, however, being carried out by Mr. Pound, at Brisbane, and the question will now soon be settled.

APPENDIX J.—Foot-rot.

Dressings recommended by Mr. E. Stanley, Government Veterinarian. (For further details see *Agricultural Gazette*, July, 1891):

Arsenic Dressing.

Arsenic from 1 to 2 oz.; potash, from 2 to 4 oz.; water, 1 gallon.

To be used in troughs for the sheep to walk through. The mixture to be boiled slowly for half-an-hour at least, till the arsenic is thoroughly dissolved.

Sulphate of Copper (Bluestone) Dressing.

Sulphate of copper, from ½ lb. to 1 lb., dissolved in a gallon of water, may be used instead of arsenic.

The following healing dressings may be used by hand after the above caustic applications:—

Tar Dressings.

Stockholm tar, 20 parts; carbolic acid, 1 part; or, Stockholm tar, 8 parts; bluestone in powder, 1 part; or, oil of tar, 10 parts; carbolic acid, 1 part; olive oil, 1 part.

Lime Dressing.

Quick-lime, sprinkled on a dry surface, and the sheep walked through it frequently, will be found very beneficial. Before any dressings are used, the whole of the loose horn should be pared carefully from the diseased feet. It is of the greatest importance that the sheep's feet should, on the dressing being applied, be kept thoroughly clean and dry for at least three hours afterwards. They should, therefore, on leaving the troughs. or being dressed, be passed directly on to a battened or wooden floor, if it can be got; and where neither of these is obtainable, they should be passed into a dry yard, in which there is a good coating of straw, cut grass, or dry bark taken from trees which have been rung, or, in fact, any other thing which will keep their feet clean and dry.

The following are the remedies reported by the inspectors to have been used, and the results:—

Application.	Result.
Arsenic in troughs	Good.
„ bluestone and carbolic acid	Not given.
„ and bluestone	Good.
„ and lime	Fair.
„ and saltpetre	Not given.
Bluestone and corrosive sublimate	Satisfactory.
„ and arsenic	Good.
„ and kerosine	Good.
„ and lime	Good.
„ and sulphur	Good.
„ arsenic and carbolic acid	Good.
Butyr of antimony	Good.
„ „ carbolic acid and oil ..	Satisfactory.

Application.	Result.
Corrosive sublimate	Not given.
Corrosive sublimate and bluestone	Good.
Carbolic acid	Good.
„ and oil and butyr of antimony ..	Good.
„ acid, bluestone, and arsenic	Not given.
Kerosene	Good.
„ and bluestone	Good.
Lime and tar	Not given.
„ and arsenic	Not given.
Sulphur and bluestone	Good.
Saltpetre and arsenic	Not given.
Tar and turpentine	Not given.
„ and quick-lime	Good.
„ and bluestone	Good.
Specifics.	
Cooper's Dip	Satisfactory.
Hayward's Dip	In some cases.
Little's Dip	Satisfactory.
Pottie's Specific	Not stated.
Quibell's Foot-rot Cure	Good.
Graham's Foot-rot Powder	Not very satisfactory.
Payton's Foot-rot Specific	Very satisfactory.

TUBERCULOSIS IN CATTLE.

To the Editor of "The Times."

SIR,—I have read with some regret the tenour of the reply given by the President of the Board of Agriculture during the short debate on bovine tuberculosis and the proposals for dealing with it which arose on the night of Monday, the 8th. So far as I can gather, he grounds his refusal to adopt the recommendations of the Royal Commission on the hopelessness of attempting to induce stockowners to avail themselves of the tuberculin test at the public expense in the face of the disapproval of the Associated Chambers of Agriculture. I venture to think that this disapproval is based on misapprehension. It was expressed at the meeting of the council of the Associated Chambers, held in London on June 7th last, and was to the effect that the recommendations of the Royal Commission could not possibly be carried out unless compensation were given in full out of the Imperial funds for cattle that were destroyed in the interests of the general public.

This reads fair enough, assuming that there is perfect analogy between the proposals for combating tuberculosis in cattle and the means already in force for stamping out by compulsory slaughter such diseases as glanders, pleuro-pneumonia, and swine fever. But there is no such analogy. There is no proposal to order the slaughter of all animals affected with tuberculosis, still less, as in other contagious diseases, of healthy animals which have been in contact with them. The only case in which the Royal Commission require notification is that of disease in the udder of a milch cow; when, should the disease, on veterinary inspection, be pronounced to be tuberculosis, the animal shall be slaughtered without compensation to the owner. If *post-mortem* examination should prove the veterinary surgeon to have been mistaken and the disease to be other than tubercular, then compensation shall be paid. But why, ask the Associated Chambers, is compensation not to be due if the

disease of the udder is tubercular? Because, hold the commission, tubercular disease practically never attacks the mammary glands until the whole system is permeated with it and the animal is in the last stages of tuberculosis, unfit for meat or any other purpose. It is very seldom that the animal lives long enough in such a condition of advanced tuberculosis to permit the disease to show itself in the udder; it is manifestly mischievous to allow milk to be drawn and supplied for consumption from a poisonous source, tainting all other milk with which it may be mixed on its way to market; and, as the carcase of such a cow is invariably worthless for any other purpose, it is difficult to see on what ground a just claim for compensation can be based.

The other case for compensation arises when the carcases of animals exposed for sale are seized by the meat inspector because of the presence of tuberculosis, and condemned on the order of a magistrate to be destroyed. The Commission were strongly impressed by the want of a rational and universal standard of unsoundness for the guidance of meat inspectors and magistrates. There is an absolute absence of system in this respect. Carcases are condemned in some parts of the United Kingdom for the slightest symptom of tuberculosis; in others more commendable discretion is shown, and only those carcases are condemned which are extensively affected, and the condition of the meat has become deteriorated. It is undoubtedly the case that animals in which it has been impossible to detect clinical symptoms of tuberculosis during life have been condemned after slaughter because of the presence of that disease. Herein a minority of the Commission recognized ground for a just claim for compensation, pointing out, at the same time, that under a more intelligent and uniform system of inspection seizure of carcases would become very rare, and that, if compensation were limited to those cases in which £10 and upwards had been paid for the animal (which was the *minimum* price mentioned on behalf of the Butchers' Association), such claims would hardly ever arise.

It is easy to arouse the suspicions of the British farmer by proposing the voluntary adoption of a test which shall reveal to him the extent to which an incurable disease has affected his stock. Mr. Long, in the debate on the 8th inst., is reported to have referred to "the expense and loss" to which the test would expose the stockowner. It is deplorable that such misleading expressions should be used. In Denmark, up to the close of 1896, the owners of 5,306 herds of dairy cows, numbering 144,800 animals, had voluntarily adopted the tuberculin test gratuitously applied by the Government. Tuberculosis was found to exist in 45,800, or 31·7 per cent., of these animals, but where was the "expense and loss" to the owners? It consisted solely in the cost of erecting movable wooden partitions in existing cowsheds, in order that reacting animals might be separated from sound ones, which was the chief condition stipulated for by the Government before the free application of the test. The cost of these partitions, where isolation in a separate building was inconvenient, was literally all that fell on the Danish farmer, or his landlord, in return for enabling him to get practically quit of a terrible disease in his herd.

For that it is an effective means of expelling the disease, Danish experience leaves us in no doubt. In April, 1892, the test was first applied to a herd at Thurebylille, about 30 miles from Copenhagen. Out of 208 animals, tuberculosis was denounced by the test in no less than 131. I visited Thurebylille in May, 1897, when there were 204 animals in the house, of which 49 were isolated as unsound in the compartment beyond the moveable partition. These unsound animals were none of them visibly affected; many of them were giving milk, which was sterilized by boiling before being given to their calves; they would gradually be fattened off for slaughter. The test was applied to 155 animals in the sound section and the temperatures taken in

my presence. Only six of these animals reacted to the test, and were at once transferred to the unsound compartment. The degree of mastery which had been obtained over the disease may be estimated by comparing 131 reactions obtained in 1892, with six obtained in 1897, which is the more remarkable because at the times the test was taken these cows had never left the byre for nearly eight months, and the sound and unsound sections were under the same roof.

The cost of providing tuberculin and applying it gratuitously may be reckoned at 2s. 3d. per animal, including the veterinary surgeons's fee. Taking £500 as the initial cost of fitting up a laboratory capable of turning out 100,000 doses annually, there must be added the expenses of the staff. If 50,000 animals (which is the utmost that might be expected in the first year) were submitted to the test, the cost to the Treasury at 2s. 3d. per head would be £5,625, which is as nearly as possible what the Danish Government now spends annually on the tuberculin test out of a total public revenue of about £4,000,000. It seems to some of us that Great Britain, with her revenue of over £100,000,000, might do worse than follow the example of her neighbour, and encourage her farmers to rid themselves of an obstinate and disabling impediment to the highly competitive dairy industry.

I am, Sir, your obedient servant,

August 12th. HERBERT MAXWELL.

P.S.—Although I fail to recognise the justice of the claim for compensation for a cow compulsorily slaughtered for tubercular disease of the mammary gland, cases of this sort would arise so very seldom that it might be well worth while to undertake such compensation if it would conciliate agricultural objection to the voluntary adoption of the test.

Notes and News.

THE risk which horses, especially nervous or vicious animals, incur in travelling by rail, is sufficiently great to impart considerable interest to the results of the trials in tethering which have now been in progress for a period of twelve months on the Midland Railway. The chief merit of the new system is that it makes it impossible for a restive animal to get its feet over the tie rope, an occurrence which is known to be the most frequent source of injury. In the new tethering apparatus, devised by Mr. Bartrum, there is a ring in front of the noseband of the headstall, from which a rope passes through a slot cut in the partition over an adjustable pulley-wheel, and attaches to a movable weight with spiral spring enclosed in a box. By this arrangement the horse, whilst perfectly secured, is to all intents and purposes "free," whilst the groom has complete control without the risk attending the entering of the horse-box proper in the case of a plunging and kicking animal. By raising or lowering the pulley-wheel, the appliance can be adapted to horses of different heights. The simplicity of construction and the impossibility of getting out of order, are other points in favour of the apparatus, which, moreover, is adaptable at small cost to horse-boxes as at present designed. The Midland Railway Company, having tested the system in three of their horse-boxes, are now having 25 additional boxes fitted with the appliance. It is believed that a more extended use of the method will not only save endless trouble in tethering, but will add greatly to the safety of horses when travelling by rail.

INSURANCE AGAINST TUBERCULOSIS.—On Wednesday, 21st September, a meeting of delegates from the directorate of the Scottish Chamber of Agriculture, representatives of the live stock salesmen of Edinburgh, and delegates from the Edinburgh Butchers' Association, was held at 5, St. Andrew's Square to consider the question of mutual insurance against the losses caused by the seizure of tuberculosis carcases. Among others present were Mr. Andrew Hutcheson, vice-convener of Perthshire; Mr. John Dobbie, Campend, Dalkeith, vice-convener of the Local Authority of Mid-Lothian; Mr. John Speir, Newton Farm, Glasgow, who was a member of the Royal Commission on Tuberculosis; Mr. James Swan, of Messrs. John Swan & Sons; Mr. G. D. Wood, butcher; and Mr. J. Reid, representing Messrs. Oliver & Son; Mr. Brydon Hogg, chairman of the Edinburgh Butchers' Association; Mr. Isaac Connell, secretary of the Scottish Chamber of Agriculture, etc. Mr. Hutcheson, who presided, said Mr. Connell had called the meeting in response to a communication on the subject of tuberculosis received from the secretary of Messrs. Oliver & Son. For his own part, he held, and held strongly, that when an apparently healthy animal was bought at a sale by a butcher in good faith, and at a good price, if that animal was found, after slaughter, to be tuberculous, and had to be destroyed in the interests of the public health, the public ought to pay for the carcase. The Royal Commission on Tuberculosis had made some important recommendations in regard to meat inspection, among other things that the carcases should only be condemned if they showed generalised tuberculosis; but when the disease was localised the Commissioners held that the removal of the affected part or parts was all that was necessary in the interests of the public health, as they had overwhelming evidence to prove that the unaffected parts of the carcase were perfectly fit for human food. But until steps were taken to place the inspection of meat on a proper footing, as advocated by the Royal Commissioners, they must do what they could to protect themselves against individual hardship, and the best available means of doing so seemed to be by a system of mutual insurance. As he understood, it was a communication from the chairman of the Edinburgh Butchers' Association which had caused the secretary of Messrs. Oliver & Son to invoke the assistance of the Scottish Chamber of Agriculture. He would ask that gentleman to state the views of the Association.—Mr. Brydon Hogg said the Association, of which he was chairman, had long felt the extreme hardship of the butchers being called upon to sustain the entire loss of the carcase of an apparently healthy animal, which after slaughter was found to be affected in a greater or less degree with tuberculosis, and had to be destroyed. The Association had, therefore, decided that unless a system of insurance against that loss was agreed to by exposers, the members of the Association would refuse to purchase stock at the public sales without a guarantee. That was the position in which matters stood.—Mr. James Swan said his firm were perfectly willing to start an insurance fund in their own business against tuberculosis, and by way of giving the matter a fair trial they were prepared, on payment of a shilling a head—one half of that premium to be paid by the seller and one half by the buyer—to guarantee against tuberculosis every bullock and heifer sold at any of their marts. They were prepared to take that responsibility on themselves for three months, and if at the end of that time the premium or insurance fund was found to be more than sufficient to meet the calls made upon it, then the premium could be reduced, and if it was found to be insufficient, it would have to be raised.—The Chairman said he was very glad to hear Mr. Swan make this very satisfactory offer. For himself, if a butcher came to him and said that one of his beasts had turned out tuberculous, he not only sympathised with the man, but he shared the loss with him by giving him a £10 note. [Mr. Swan: I wish we had you sending your cattle to Edinburgh.] He would be very glad to pay an insurance pre-

mium of 6d. per head on every fat beast, so as to put an end to all complaints on the subject.—Mr. G. D. Wood and Mr. Reid, as representing Messrs. Oliver & Son, said they thought the terms proposed by Mr. Swan were very reasonable, and such as any auctioneering firm might agree to.—Mr. Brydon Hogg asked if Mr. Swan's offer was limited to the insurance of bullocks and heifers only, or whether it would include cows as well?—Mr. Swan replied that his offer was limited to bullocks and heifers, and would certainly not apply to cows.—Mr. Connell said that at Mr. Craig's auction mart. Ayr, there was an insurance charge of 6d. per head, payable one half by exposer and one half by the seller. This system was found to give every satisfaction.—To this Mr. Swan replied that Ayrshire was not Edinburgh, and the butchers in Ayrshire did not have Sir Henry Littlejohn to deal with. In Edinburgh every carcase showing the slightest trace of tuberculosis, although that system had been condemned in the strongest terms by both the Royal Commissions. In most of the other towns in Scotland the system of meat inspection and condemnation was not nearly so rigid, and in most of the towns in England carcases which would be condemned wholesale in Edinburgh were passed by the inspector without any trouble.—Mr. Brydon Hogg indicated that no system would be satisfactory to butchers if it did not include cows.—Mr. Speir saw that, if they were to include cows, there would have to be a different scale for them, as the risk to be undertaken was much greater. The number of cows found affected with tuberculosis was at least four times as great as the number of bullocks or heifers affected. He might also point out to them a fact which was not generally understood, namely, that it was not with the meat inspector as the medical officer that the power of condemning carcases finally rested. The inspector or medical officer was empowered to give an official declarator that such and such a carcase was not fit for human food, but the owner could, it he thought he had a good case, appeal to the judge of court, and lead evidence to show that the carcase was fit for human food, and the final decision would rest with the judge. He knew that they in Edinburgh were under a system of meat inspection which both the Royal Commission on Tuberculosis had regarded as leading to a great and unnecessary waste of human food. For himself, he believed that in a case of localised tuberculosis, if the owner were to appeal to the judge of court and base his appeal on the strong recommendations made on this subject by both Royal Commissions the judge would almost inevitably decide in favour of the owner and against the medical officer.—In regard to the point raised by Mr. Speir, several of the butchers present argued that for obvious reasons no butcher would care to raise such a point in the law courts, and that such action should be taken by the farmers. It was also stated that the Butchers' Association would be willing to pay the costs of such an action if raised by a farmer. The Chairman said that when Mr. Swan's firm had agreed to go in for the insurance of bullocks and heifers the other salesmen in Edinburgh would, of course, have to follow suit, as the butchers would prefer to buy at those marts where they were insured against loss from tuberculosis. When they had got thus far they might try and see if they could not agee also on a sale of insurance for cows also so as to meet the wishes of the Butchers' Association. He would ask Mr. Swan if he could not make an offer in regard to cows also?—Mr. Swan said the question as to the insurance premium on cows would require very careful consideration. His firm sold over 100 fat cows every week, and although 70 per cent. of these would go to England to be resold at other sales, so that there would be no trouble about them, it rarely happened that a single week passed without one cow being condemned in Edinburgh, and sometimes two or three. The rate he had offered to accept for bullocks and heifers would be wholly inadequate for cows. An insurance premium of one

shilling per head on 100 cows would only come to £5 per week, and that would be less than half the loss if only one cow per week of all the lot sold were condemned.—A good deal of discussion ensued on this point, and it was mentioned that one Edinburgh man who deals largely in the cheaper class of cows had had twenty carcases condemned within the last two months. The question was raised as to whether there should be a limit of price under which no animal should be insured so as to exclude "fevers" from the operation of the insurance system. In regard to this, it was pointed out that, under the new Public Health Act, the inspector had power to seize a "fever" exposed in any market or auction mart, and the exposer of any such "fever" was also liable to prosecution for exposing any such animal. It was also agreed that in the case of an animal that showed any symptoms calculated to excite a suspicion of its not being right, the auctioneer should be entitled to declare at the time that this animal would not be insured. As to the proposed limit of price, the butchers argued that such a limit would simply be putting a premium on fraud, as any animal which the exposer had reason to be doubtful of could be easily run up by arrangement to the limit of price, so that the compensation would have to be paid from the insurance fund. Eventually Mr. Swan offered to insure the cows also at a premium of 2s. per head for three months. This offer was received with applause as providing a means of obviating what had threatened to be a deadlock between stock-owners and butchers. A committee consisting of Mr. Dobbie, Mr. Swan, and Mr. Brydon Hogg was appointed to formulate the scheme, and draw up a report to be presented to the Scottish Chamber of Agriculture and the Butchers' Association.—*Edinburgh Evening Dispatch.*

Extracts from Foreign Journals.

THE PRESENCE OF TUBERCULOSIS BACILLI IN BUTTER.

(*Continued from page* 240.)

In order to determine if the butter eventually, as a fatty body, did not intervene to modify the colouring reaction of the pseudo-bacilli, R., following the advice of Bienstock, cultivated on butter-agar the most diverse bacteria, including the tuberculous pseudo-bacilli. It is well known that Bienstock remarked that different microbes when cultivated on butter-agar took on colouring matters like those of Koch. R. did not observe this in the case of the different bacilli cultivaied by him on this medium; the tuberculous pseudo-bacilli alone possessed this property, and that even after undergoing the action of a strong solution of potash, or of a mixture of alcohol and ether, employed to dissolve the fat. Yet it happened in some cases that the pseudo-bacilli collected in the belly of the guinea-pigs and taking on red well, lost this facility after the fat had been dissolved. The tuberculous pseudo-bacilli can be cultivated better when they are taken from the peritoneum of animals that have died after an illness of several weeks than when subjects are made use of which have been slaughtered a few days after inoculation. Often the concomitant presence of micrococci and of strange bacilli renders pure cultivation of the pseudo-bacilli difficult; they then grow more closely, namely, after three to four days, whilst in the other case they vegetate in a quite apparent manner after two to three days. On agar the cultivation coming from the animals inoculated at first forms a thick layer, damp and creamy, which later on gets covered with a shrivelled membrane, orange-yellow, or

coppery. After being once or twice used on the animals, the cultivations on agar or agar-glycerine are dry and scaly, exactly like those of tuberculosis. On butter-agar, the colonies are at first small, white, dry, and isolated; later on they cover the whole surface and become orange-yellow coloured. On potato, the tuberculous pseudo-bacilli give a thick cultivation, which is moist and greyish. They sprout slowly in gelatine without liquefying it, and only after three days do they form small colonies drawn up in line along the passage made by the puncture. In bouillon, especially in glycerinated bouillon, the development is rapid; after two to three days the surface of the liquid, which has up to that time remained clear, becomes covered with a thick and plaited membrane. This cultivation can be distinguished from that of tuberculous bacilli only by its ammoniacal and disagreeable odour and by the formation of indol. Finally, the bacilli of butter do not coagulate milk, and develop on its surface in a thick red-yellow layer.

On the non-albuminous medium prepared by Professor Proskauer, the cultivation makes an appearance as early as after two to three days, and after 10 days it forms a thick, consistent, plaited membrane of a yellowish colour. A cultivation of tuberculous bacilli made on the same medium after 10 days formed only a thin membrane, spread out or scarcely folded; but gradually this cultivation takes on the characteristics of the first, with the exception of the odour, which in this latter case is rather agreeable than otherwise. Further, the addition of an acid does not make it turbid, whilst the contrary takes place when a cultivation of butter-bacilli is acidified. The two kinds of bacilli enclose fat and take on colour in black by Unna's method. For one night fresh cultivations on agar-glycerine are placed in Fleming's liquid, then the mixture is washed with water. At the bottom of the vessel a black deposit may then be seen to form. This reaction continues to take place even if the cultivations are treated for 12 to 24 hours by alcohol or ether in a cold state, which proves that the fat has remained in part fixed in the bacilli. The action prolonged for 24 hours of a mixture of alcohol and caustic soda hinders reaction, the fat having been extracted by the dissolvent. Dr. Capaldi claims to have found in cow-dung bacilli presenting the same microscopic characteristics and the same colouring reactions as those of Rabinowitsch. It remains to be seen whether the analogy holds good for cultivations and biological reactions.

To sum up, the bacilli of butter and those of tuberculosis are identical in the microscopic preparations, but they may be distinguished by their cultivations; the former vegetate rapidly in all solid media, in which they form a thick coppery-yellow layer with an ammoniacal smell. In liquid media, and notably in bouillon, the cultivation of the Rabinowitsch bacilli gives traces of indol, grows turbid with the addition of an acid, and gives out a bad odour. As to the pathogenic action of the bacilli of butter on guinea-pigs, it is shown by lesions which, from the macroscopic and microscopic point of view, may be confounded with those of tuberculosis. If an autopsy be made of a guinea-pig killed three weeks after intraperitoneal inoculation, it will almost always be observed that the belly is slightly distended, that adherences, either fibrous or already conjunctive, exist between the abdominal viscera, and that the two folds of the peritoneum are sprinkled with granulations. The mesenteric ganglia are tumefied and enclose caseo-purulent masses. The liver is covered with nodules, which are almost always superficial, and may be enucleated as if they were foreign bodies. In the spleen, on the contrary, the tubercles are situated in the gland itself. The kidneys, likewise, are covered with yellowish granulations. In the thorax may be seen, on the surface rather than in the tissue of the lungs, numerous grey and translucid miliary tubercles. The sternal ganglia are often swollen, but without caseification. When inoculation has

been made in the cellular tissue, the latter presents a suppurated swelling. By the microscope and by cultivations, bacilli may be found in all these lesions resembling those of tuberculosis. The blood contains very few of them, and in order to make sure of their presence in it cultivations must be resorted to. It should be remarked that all the guinea-pigs inoculated do not die; sometimes they get better, especially when they have been injected with a small quantity of butter. Inoculations made with cultivations give the same result. The bacilli of butter are therefore pathogenic for guinea-pigs; but rabbits and white mice are refractory to them. Guinea-pigs inoculated with pure cultivations do not react to tuberculin. Microscopic sections made in the diseased organs show nodules formed by masses of lymphoid and epithelioid cellules with a few rare voluminous and multi-nucleated cellules to which Rabinowitsch denies the title of Langham giant cellules. In the guinea-pig that has died of real tuberculosis, the giant cellules are often wanting in certain lesions, and, besides, these giant cellules are not specific. Rabinowitsch proclaims the presence of the butter-bacilli in the centre of the fresh nodules, and sometimes likewise in the periphery of those which are already caseous.

To sum up, finally, in the course of his numerous researches, *M. Rabinowitsch has not once met with the real bacillus of tuberculosis in butter*, contrary to what had been observed by several renowned microbiologists; *he has found in butter a new kind of bacterium which in most respects resembles the Koch bacillus, and which sets up a pseudo-tuberculosis in guinea-pigs inoculated with it.* According to Rabinowitsch, this bacterium has been taken for the tubèrculosis bacillus by the authors who have studied the question before him; the presence of the Koch bacillus in butter would still have to be demonstrated. In any case, this fact must be of such rarity that it does not call for any serious hygienic precaution.

In spite of all the rigour exercised by Rabinowitsch, we confess that his work has not quite convinced us, and we think it needs to be confirmed and checked by new researches. Even supposing that it is really a question of pseudo-tuberculosis in the guinea-pigs inoculated, it is none the less true that the bacilli of butter are pathogenic for these animals, and perhaps also for man. To conclude under these conditions and in face of former works, that there is no reason for uneasiness from the hygienic point of view, seems to us *a priori* just a little venturesome. The fact must not be lost sight of which MM. Bataillon and Terre have just established, that the Koch bacillus is subject to polymorphism, and that many of the cases of pseudo-tuberculosis are proved tuberculoses, which have for their agent one of the numerous forms of this bacillus.—(*Zeitschrift für Hygiene und Infections-krankheiten.*)

INFECTIOUS PARALYSIS.

THIS is a disease with which most veterinary surgeons in Lorraine are acquainted. Hardly a year passes without my hearing of its having raged in some part of the region of the department of the Meuse or of its neighbourhood. The first time that I met with it in person was in 1884, during the severe cold of winter, in the stable of a farmer in easy circumstances, who lived near the hills of Argonne. The stable was composed of seven horses of all ages, employed only for farm-work, well fed, well looked after. They were in the very midst of their spell of rest when this awful disease fell upon them like a thunderbolt. In a few days it caused the death of four, after some fifteen or twenty hours of illness. The fifth and sixth, attacked afterwards, suffered for a few days, and were kept alive as long as was possible. Finally, the seventh and last, which was less seriously attacked, was looked

after by our *confrère* Potier of Varennes and myself for some weeks, though we were somewhat in the dark and had to trust to luck, and it returned to health. In regard to this epizootic, I have preserved, by reason of its striking character, a very clear remembrance of the facts, which are as follows :—

All poisoning which could arise from man or from food had to be removed to a distance.

It was the subjects first attacked which were attacked worst, and the disease seemed to die away in proportion as it reigned, and this to such a degree that we had at one time hopes of saving the sixth.

The patients presented many of the symptoms of generalised ordinary paralysis, though they all the same preserved in their general appearance a marked expression of good health. A few hours before dying they distinguished the voice of their master very well ; there was no fever.

The autopsies which we made taught us nothing, the excessive rigour of the weather preventing us from making them under suitable conditions, and our researches were specially directed to the contents of the digestive apparatus.

On the 7th April last I again found myself face to face with this disease, in the valley of the Meuse. This time it was a stable of six horses, of different ages also, doing farm-work part of the year and drawing wood the rest of the time, well enough fed, but kept rather hard at work. On this day, on getting out of bed, the owner found lying and unable to get up a six-year-old mare, an excellent animal, with foal for three months. When roused she raised her head a little. Her look was much the same as usual, perhaps a little sleepy-looking. She ate and drank now and again, but listlessly. Respiration was slow, the pulse full, 40 beats, the anal temperature 38·1 ; the mucous membranes were slightly injected. The principal feature of the treatment I prescribed was refrigeration of the lumbar region. The evening of the same day the condition was much the same ; the forequarters and the head were a little less free and the limbs shook oftener. The animal dunged a little, but did not pass water. By the help of pressure on the bladder, performed per vaginam, I produced the emission of three to four litres of urine, which appeared normal. On the 8th, although the respiration, the state of the pulse, and the temperature were stationary, the paralysis increased in intensity ; the head was not raised again, the features partly lost their expression, the movements of the limbs were more spasmodic and less frequent, and the extremities grew cold. Towards evening, after a few deep and slow breaths, she died. This mare was placed second in the line in the stable. The same day a ten-year-old mare, also with foal for three months, placed third in the line, fell down suddenly in the middle of her work in the fields, after having given signs of weakness for a minute or two. Brought back in a cart and laid down in her usual place, she acted exactly like the first ; and on the 9th, in the morning, she was taken away by the knacker, who first bled her. By reason of the unpardonable carelessness of the owner, I was not warned of the departure of the two dead bodies, and so could not make an autopsy of them. However, I got from the mouth of the knacker a valuable piece of information. "The second mare," he told me, "had almost two pailfuls of urine in the bladder." On the previous day (the 8th), after examination of the second case, in view of the seriousness of matters, I had caused the stable to be evacuated, and the four remaining subjects to be placed under an isolated and well-ventilated shed. On the 9th one of these four, a small stallion, two years old, already doing a great deal of work in spite of his youthful age, placed first in the line in the infected stable, had in the morning difficulty in getting up. When helped, he did so, then ate and drank with a pretty good appetite. When brought back once or twice during the day, his gait was staggering. When resting he kept his head low, and often changed from leg to leg to support himself. On the 10th I saw him at 5 in the morning.

His condition was a little worse. His respiration was calm, pulse 40, temperature 38·8, mucuses were a little injected, loins yielded to pressure. He dunged and passed water normally. Remembering that, in the course of the treatment of the seventh patient of the epizootic of 1884 we had employed a seton I put one into the chest, and had the animal suspended. Further, two ropes attached to each side of the halter and to the planks of the ceiling kept his head horizontal, on a level with the withers. Up to the 15th, the day of his death, the horse remained suspended. In him the symptoms of weakness slowly grew accentuated. The temperature, however, when taken as late as the 13th, was not more than 39·1 ; he ate and drank up to the 14th, dunged and passed water, and almost up to his very death his features preserved their expression. There was given to him, morning and evening, a litre of coffee, with brandy added. Further, as I had noticed a short time before the communication of our *confrère* Lang in the *Recueil*, relative to the employment in veterinary medicine of testicular juice, it seemed to me that treatment with the help of this method was quite appropriate under the circumstances. As I feared that, in sending for this substance to Paris, it would not arrive in time, I studied its method of preparation, and, as well as I could, made one by help of testicles removed at once from a young bull. I must confess that these injections, when I employed the quantity indicated by M. Lang, gave rise to noteworthy œdemas, which, if the animal had lived, would have given me some trouble. I attribute this result, which will not surprise those initiated in this kind of work—knowledge of which, however, may put on their guard those who may try to imitate me—to the insalubrity of the place in which I operated. This place, which served as a kitchen, was badly ventilated, dusty, and not very clean, as much by reason of the presence of children as of the disorder caused by the illness of the horses. Autopsy of this horse was made with all possible attention. It showed me, besides the lesions attributable to the rubbing of the suspension apparatus, to the introduction of the seton, to the œdema of the points of injection, and to the stasis of blood *post-mortem*, dirty, congealed serosity of a citron colour round the kidneys and the bladder, a certain state of softening of the substance of these latter, and hyperæmia of the medulla in the lumbar region ; further, a serous expanse round about the latter.

I had prescribed cleaning and disinfection of the stable and the longest possible ventilation before putting back into it the three horses up to that time unaffected, and two fresh ones purchased about the 12th. The owner, seeing that the shed which served provisionally as a stable was itself infected by the presence of the third patient, and having no other place at his disposal, brought back his five animals after three or four days to the first stable. I returned there yesterday, 7th May. The two new horses showed nothing abnormal, but the three old ones, two aged animals and a one-year-old colt, placed originally side by side, in room of the three patients, could not get up easily. Almost every day one or two men helped them to get up by catching hold of the tail. On the most minute examination both in the stable and out of doors, nothing revealed the malady from which they were suffering. Their gait and their aptitude for work were the same as formerly, and all the functions were well performed, even the urinary functions. I prescribed for them bicarbonate of soda, nux vomica, and arseniate of soda.

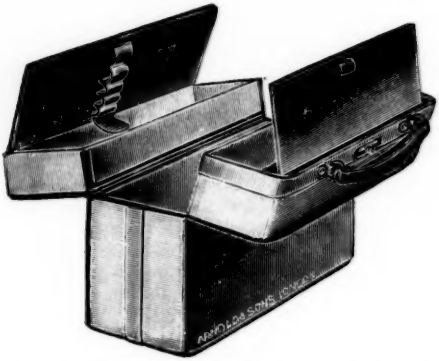
The contagious character of this disease is startling. But where and how is the infectious agent developed? Are the lesions of the genito-urinary apparatus primitive or symptomatic? That is the point to be elucidated. In human medicine it is a fact that there are frequently relations of cause and effect between certain medullary lesions and troubles of this apparatus. It is not even certain whether reciprocity is not true.—M. DE SERANCOURT in the *Recueil de Méd. Vet.*

Correspondence.

"EMERGENCY BAG."

To the Editor of THE VETERINARY JOURNAL.

SIR,—The desire to possess a compact bag, capable of holding drugs and instruments suitable for use in those cases to which we are often hurriedly called, has suggested to my mind such an "Emergency Bag" as is here depicted.



The bag when closed measures 13 inches long, 4½ inches wide, and 10 inches deep. When open it is divided into a base and two flaps. The base contains loops for four 4-oz. bottles and a glass jar; there is also room for tow, bandages, syringe, catheter, etc. On the cover of the flaps are loops for instruments, and the flaps may contain—a tin case for horse balls, another for suture needles and material, a hypodermic case and pellets, etc., according to the

practitioner's wish. In fact, the bag can be fitted with nearly everything a veterinarian can require on an emergency, besides those things that are of daily utility.

The bag is lined with Messrs. Arnold and Sons' patent enamel lining, and the loops are as suggested by Mr. Gillam in his "Improved Instrument Case," which allows of the thorough cleansing of the interior of the bag.

And, finally, the "Emergency Bag" is supplied by Messrs. Arnold and Sons at the very moderate price of £2 2s.

Hoping that my suggestion may supply a want,

I am, Sir, your faithfully,

B. P. GODFRAY, M.R.C.V.S.

7, Windsor Crescent, Jersey.

THE ALLEGED CASE OF RABIES AT SLOUGH.

The High Elms, Nutfield, Surrey,
September 21st, 1898.

SIR,—May I ask you of your courtesy to find space in your columns for the enclosed letter on the above case, addressed to me by Sir H. Simpson, F.R.C.V.S., together with my rejoinder?—I am, Sir, faithfully yours,

FRED. E. PIRKIS,
Hon. Treasurer, National Canine Defence.

Gordon House, Windsor,
September 11th, 1898.

SIR,—As the dissemination of the reports you have published, throwing doubt upon my diagnosis of a case of rabies at Slough last April, has led to inquiry by persons interested in dogs, perhaps I may be allowed to say that other well-marked cases have occurred in the same neighbourhood previously.

My son, Mr. H. Simpson, informed the owner of the dog, after his preliminary *post-mortem* examination, that the decision as to the case being declared to be rabies rested absolutely with me as the official inspector for the district, and that he was therefore making the examination as a preliminary to my inspection.

Whilst having no doubt as to the history and *post-mortem* appearances denoting the case to be rabies, I sent the brain and viscera to the Board of Agriculture, whose veterinary advisers confirmed my opinion.

Your society would do well, in all cases they desire to investigate, to ascertain particulars from the official veterinary officer, whose interest does not lie in the direction of declaring a dog to be rabid, and who, moreover, has the best opportunities for observation, and I am sure many (myself one of the number) would willingly give every information.

I strongly deprecate your invitation "to pay no heed to the reported cases of rabies in future."

Rabies has an existence, and your society will be guilty of little less than a crime if it desires, through its officers, to ignore the fact, especially at this stage, when the disease is well nigh stamped out.

Believing you will not hesitate to give publicity to this letter in the interests of the public.—I remain, yours faithfully,

HENRY SIMPSON, F.R.C.V.S.,
V.S. to H.M. the Queen.

The High Elms, Nutfield, Surrey.

To Sir H SIMPSON, F.R.C.V.S. *21st September*, 1898.

SIR,—I have had much pleasure in complying wtth your request to send your letter, respecting the alleged case of rabies at Slough, to the local press. I think it is very courteous of you in this way to send me your letter beforehand, as I am thus enabled to publish simultaneously my rejoinder to it.

I will take your letter *seriatim* as it stands and allude in the first place to the "other well-marked cases of rabies" which you say have occurred in the same neighbourhood. These, permit me to say, must be at once ruled "out of court" for the simple reason that you give no particulars concerning them whereby they could be located and substantiated. I should expect you thus to rule "out of order" any casual allusion of mine to alleged cases of rabies which had been investigated by the "Canine Defence" and proved to have been no rabies at all.

With regard to the main point at issue between Mr. Stevens, M.R.C.V.S., and yourself—the rabid or non-rabid condition of the dog at Slough—it is possible that the verdict of the public generally will be that this is a case of doctors differing; nothing more. For myself, however, Mr. Stevens's report remains unimpeached. To my mind, it is a matter of common-sense that a "very large tapeworm" in a dog's body would amply explain the symptoms this one exhibited, and I utterly refuse to silence my common-sense at the bidding of the Board of Agriculture's Laboratory-assistants. That this laboratory, on the strength of its test by inoculation, should pronounce a dog suffering from tapeworm to have been rabid is, to my mind, proof positive of the futility of that test. All that such inoculation of rabbits could at any time prove would be that there was enough poison (of a sort) in the dog's system to kill half-a-dozen rabbits. What that poison is (the microbe of rabies never having been discovered), no one can pronounce any more than they can affirm of what disease those rabbits died, for rabies has symptoms in common with other diseases. The whole system of inoculation for or against a disease is open to grave impeachment. Jennerism has recently been doomed by the voice of the people, and I think there is little doubt but what Pasteurism will in due course follow it into limbo.

With regard to your remark that it would be well if our society, when undertaking investigations, were to apply in the first instance to "Official veterinary inspectors, who would willingly give every information as to the suspected dog," I regret that my experience does not tally with your opinion.

Mr. Stevens having recently been met, in a district not far from your own, with a blunt and discourteous refusal from an official inspector to supply any information whatever as to an alleged case, he now adopts the plan of going in the first instance to the owner of the dog, who, as a rule, is only too glad to have the matter thoroughly gone into.

Your deprecation of the "invitation to pay no heed to reported cases of rabies in the future" must be passed on to the gentleman who made the remark—the hon. secretary of the "Reading Dog-protection Society." This is a kindred society to the one I have the honour to represent—the "National Canine Defence." The two societies, however, are in no way connected.

Although I admit the existence of rabies *as a most infrequent dog-disease*, I certainly do not consider that the best interests of the public are served by crying "mad dog" on every possible occasion. *This* I am disposed to designate "a crime" insomuch as it is apt to drive nervous persons who may chance to get a scratch from a dog's tooth into a hysteric condition, in which (in all good faith) they simulate the symptoms of hydrophobia and die of tetanus or fright. Of this there have been many instances of late.

I gather from the concluding sentences of your letter that you attribute the much-talked-of decrease in rabies to Board of Agriculture methods. Here, again, I regret that I must join issue with you for I attribute it *wholly* and *solely* to the decrease, by considerably over a million of the dog-population, and in no wise to the partial muzzling and semi-hysterical dog-legislation to which we have of late been treated by this newly-formed Government Department.

I am aware that it is urged in extenuation of this legislation that the recent formation of this board, and its inexperience in canine matters, are its best defence for its blatant errors. This I most strongly deny. If a highly-salaried board suddenly has duties to which it is unaccustomed thrust upon it, its right course would be to supply its own lack of knowledge and experience with the knowledge and experience of well-trained experts. This the Board of Agriculture has not done. Laymen, not veterinary surgeons, are the permanent officials of the board, laymen—naval and military officers—not veterinary surgeons, are its travelling inspectors. Worthy gentlemen one and all, no doubt, and I would be the last to grudge them their high salaries and good retiring allowances if such were paid for naval or military services. What, however, is wanted of them is exact veterinary knowledge and this it is obvious could only be supplied by men who have had special training in a veterinary college.

Here is the weak point of the Board of Agriculture, and it is a condition of things which touches the public on one side, and the veterinary profession on the other.

It seems to me that both should unite to bring the matter before parliament at its next session, so that it may be made the subject of a special government enquiry.—I remain, Sir, faithfully yours,

FRED. E. PIRKIS,

Hon. Treasurer, National Canine Defence.

NEW TOOTH CHISEL.

HAVING an exceptionally long posterior equine molar to excise, over which I could not pass the ordinary tooth cutter, the idea occurred to me that the chief difficulty which opposes us in operating in such cases, would be obviated if we had an instrument with a side opening. I therefore submitted a sketch of what I required to Messrs. Arnold and Sons, by whom the instrument is manufactured, and its use has been attended with the best results, not only for the excision of posterior molars, but also for other elongated teeth.

WM. CAUDWELL, F.R.C.V.S.,

Chertsey.

Reviews.

YOUNG RACE HORSES. By Sir WALTER GILBEY, Bart. Vinton and Co., Ltd.

The title of this little book—"Young Race Horses (Suggestions for rearing)"—leads me to expect useful information for a breeder of thoroughbred stock, but it is simply a long, drawn-out cry against the well-known evil of overstocking and soiling of pasture lands. Everyone knows of the evil, but, unfortunately, the many breeders are not in the same position as Sir Walter, and they have not the wherewithal to enable them to have pastures new and untainted in which to graze their stock.

Could not the author suggest some method of keeping the available land in a fairly clean condition, so that young stock could be reared on it year after year, and yet show no sign of degeneration?

DICTIONARY OF HYGIENE. By C. T. KINGZETT, F.I.C., and D. HOMFRAY, B.Sc. London: Baillière, Tindall & Cox. 2s. 6d.

As the preface states, there are naturally great difficulties in dealing with so much subject matter in a book of this size. However, there are many useful descriptions given under the various headings, and sanitary officers, for whom it is specially designed, should find it of use in their work. It can be carried in the waistcoat pocket, and the price is not excessive.

CATTLE TUBERCULOSIS. By T. M. LEGGE, M.A., M.D., D.P.H., and HAROLD SESSIONS, F.R.C.V.S. London: Baillière, Tindall & Cox. 2s. 6d.

Considering that one of the authors of this little work is a medical officer of health, and was secretary to the recent Royal Commission on Tuberculosis, and that the other is a practical veterinary surgeon, we ought to expect the book to be, what it claims to be, a practical guide to the farmer, butcher and meat inspector.

In many respects we are not disappointed in that expectation.

The evidence laid before the late Commission forms the basis of a good deal of its contents. This evidence is summarized, and deductions are drawn from it to enforce the views of the authors on the various aspects of the question.

After an introduction, in which it is shown how the interests of many widely different sections of the community are affected by bovine tuberculosis, come chapters on its causation, its prevention, meat inspection at home and abroad, qualifications of meat inspectors, examination of tuberculous carcases, utilization of tuberculous carcases, and insurance against loss from seizure.

In the chapter on the etiology of bovine tubercle it is explained how Koch discovered the bacillus, and how he demonstrated that the causation of the disease is due to this bacillus, and that heredity, climatic influences, geological conditions, food and housing play a merely subsidiary part in its perpetuation, in that they either weaken the system and make the animal more receptive to attack, or, as in the case of overcrowding, help its spread by contagion.

To the statement on page 13, that wens and hard swellings in the udder should all be attributed to tuberculosis, we cannot agree. Wens are extremely frequent in cattle in the eastern counties, where bovine tubercle is practically unknown, and these wens are due, not to the bacillus of tubercle, but to the ray fungus (actinomyces). Hard swellings in the udder are often merely the result of an attack of ordinary mammitis. As to the symptoms and diagnosis of tubercle, the authors note the great variability of the symptoms, and the little value of them in trying to arrive at a certain diagnosis of tubercle from other affections, and insist on the infallibility of tuberculin.

The chapter on preventive measures treats of the safeguarding of the public from danger of infection by use of tuberculous milk, boiling, or pasteurization being recommended, and also of the prevention of its spread among cattle, and the measures advised are:—Tuberculin to find the diseased animals; isolation of the affected; sanitation, including sufficient air space, proper lighting and ventilation.

The efficiency of plenty of fresh air in minimizing the dangers of tubercle are noted in several places in the book, nor can this be too strongly insisted on. It is quite remarkable how free from tubercle cattle are that have only open courts to run in and are not tied up.

In chapter 4 a comparison is made between the methods of meat inspection at home and abroad, much to our own disadvantage. It is to be hoped that we are going to change all that.

The necessity for employing veterinary surgeons to give a final decision as to whether meat is or is not fit for human food is pointed out, and it is stated that the Medical Officer of Health and the Sanitary Inspector have hitherto performed this duty, the former relying on his knowledge of pathology and the latter on practical experience to guide him; while the veterinary surgeon has the advantage of being familiar with both pathology and with the teachings of experience.

The chapter on the examination of tuberculous carcases is drawn mostly from Osterlag, but also contains a note of the method in vogue at the abattoirs in Manchester for examining carcases suspected of tubercle. The importance of a thorough examination of the lymphatic glands where it is a question of generalized tuberculosis is insisted on.

In the chapter on the utilization of tuberculous carcases is given the main conclusions to be drawn from experiments as to communicability of the disease by ingestion of the flesh of tuberculous animals. The flesh, as a rule, contains no bacilli, and is only infectious in cases of a high degree of tuberculosis, it is stated. The procedure adopted on the Continent in dealing with carcases of animals affected with tubercle is detailed, together with the recommendations of the Royal Commission in this regard.

The final chapter is devoted to a description of the methods by which butchers may, by a system of mutual insurance, protect themselves from losses to which they may be liable through seizure of carcases of cattle affected by tubercle.

In view of the fact that there is very little chance at present of compensation being given by the authorities for such carcases, there appears to be room for a more general adoption of insurance.

Of the book as a whole we may say that, although it is not all strikingly new or original, it contains in small compass a good deal of what anyone wishing to become familiar with the recent views with regard to tuberculosis will require.

Communications, Books, Journals, etc., Received.

Veterinarian; Record; British Medical Journal; Lancet; Report of the Bombay Veterinary College for year 1897-98; Chemist and Druggist; Bulletin of The John Hopkins Hospital; The Journal of Comparative Medicine and Veterinary Archives; The Scottish Medical and Surgical Journal; American Veterinary Review; Cattle Tuberculosis, by T. M. Legge, M.A., M.D., D.P.H.; The Public Health Journal; The Journal of the Jamaica Agricultural Society; The Surveyor; The Photogram; Queensland Agricultural Gazette; Petersburg Veterinary Society's Journal; C. H. Huish, H. J. Dawes, H. Locke, C. T. Kingzett, F.I.C.; Irish Times; Bulletin U. S. Department of Agriculture—Sheep Scab; La Riforma Veterinaria (Naples); Recueil de Médecine Vétérinaire (Alfort); L'Echo Vétérinaire (Liège); Annales de Médecine Vétérinaire (Brussels); Berliner Thierärztliche Wochenschrift (Berlin); Deutsche Thierärztliche Wochenschrift (Hannover and Karlsruhe); La Clinica Veterinaria (Milan); La Revista Veterinaria (Buenos Aires); Agricultural Journal (Cape Town); Bulletin de la Société des Sciences (Bucarest).

Silver Medal awarded at the Tunbridge Wells Agricultural Society at Tunbridge Wells, July 21st; Oxfordshire Agricultural Society at Abingdon, May 17th, 1898; and Pretoria Agricultural Show, South Africa.

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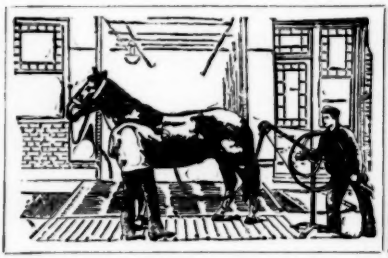

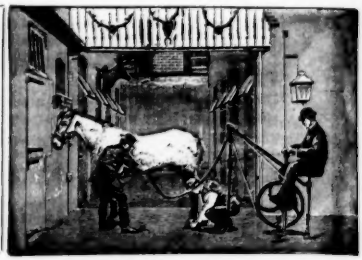

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